



USAID
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PRICE
POVERTY REDUCTION BY INCREASING
THE COMPETITIVENESS OF ENTERPRISES



DRAFT ANNUAL WORK PLAN

October 2010 – December 2011

**POVERTY REDUCTION BY INCREASING THE COMPETITIVENESS
OF ENTERPRISES (PRICE)**

Revised December 2010

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Contract Number: 388-C-00-08-00021-00

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ACRONYMS

BCLET	Bangladesh College of Leather & Engineering Technology
BDOF	Bangladesh Department of Fisheries
BLSC	Bangladesh Leather Service Center
BSFF	Bangladesh Shrimp and Fish Foundation
BTA	Bangladesh Tanners' Association
BW	Brackish Water
COEL	Center of Excellence for Leather
DILF	Dhaka International Leather Fair
DITF	Dhaka International Trade Fair
DOF	Department of Fisheries
EPB	Export Promotion Bureau
FCR	Feed Conversion Rates
FIQC	Fish Inspection and Quality Control
FW	Fresh Water
GAP	Good Aquaculture Practices
GHERS	Greater Harvest and Economic Return from Shrimp
GOB	Government of Bangladesh
ILO	International Labor Organization
ISC	Industry Skill Council
ITC	International Trade Center
JIFSAN	Joint Institute of Food Safety and Applied Nutrition
LFMEAB	Leather Goods & Footwear Manufacturers & Exporters Association
LSBPC	Leather Sector Business Promotion Council
MOU	Memorandum of Understanding
MSME	Micro, Small, and Medium Enterprises
NGO	Non-governmental organizations
OWSPL	Over-Wintered Screened Post Larvae
PCR	Polymer Chain Reaction
PL	Post-Larvae
PPP	Public Private Partnership
SCA	Seed Certification Agency
SME	Small and Medium Enterprises
SOP	Standard Operating Procedures
SPL	Screened Post Larvae
SW	Salt Water
TA	Technical Assistance
TOT	Training of Trainers
USAID	United States Agency for International Development
VAP	Value Added Products
WFC	WorldFish Centre

INTRODUCTION

Chemonics International is pleased to present the Poverty Reduction by Increasing the Competitiveness of Enterprises (PRICE) 2010-2011 work plan. Due to adjustments in the deliverable deadlines per Modification No. 2, this work plan overlaps for one quarter with the 2010 work plan. Due to the organic nature of work planning, some activities in the overlapping quarter may differ between work plans. In instances where this has occurred, this work plan takes precedence and should be used as the guide. For the project to be successful, it must be flexible and adjustable as the project environment changes and as the project's own interventions identify additional or different activities that should or could be pursued to achieve its objective (see box).

PRICE OBJECTIVE

Reduce poverty sustainably by promoting the broad-based development and competitiveness of the horticulture, aquaculture, and leather products sector in Bangladesh.

A. PRICE Background

PRICE is working to reduce poverty in Bangladesh by promoting the market based development of three sectors selected for their high potential for generating sustainable jobs, sales, and investment: the horticulture, aquaculture, and leather products sectors.

PRICE seeks to promote broad-based and pro-poor growth in these three sectors by implementing interventions that address key constraints to competitiveness, while integrating large numbers of small and medium enterprises (SMEs). This requires an understanding of the value chain – from input suppliers to processors to end-market buyers, of the business environment under which it operates, and of the economic agents that participate in it. Through its interventions, PRICE helps these economic agents understand the benefits of working together to increase the competitiveness of the value chain and, through cost sharing arrangements that reduce risk, helps SMEs improve their processes and products so they have access to more and better markets, both domestic and international.

B. Work Plan Structure and Implementation

This work plan has been produced in consultation with USAID, PRICE's partners in each of the three sectors in which it works, and with the input and guidance from various stakeholders and beneficiaries. Regular consultations will continue throughout the year with our stakeholders to ensure continued work plan relevance.

The causal models, which form the basis for interventions, are shown first. Each sector's causal model shows the primary constraints and interventions planned to address these constraints. The intended outputs, outcomes, and impacts are shown for each constraint. These interventions, based upon the causal model, form the foundation for the Gantt chart and accompanying narrative which provides further background information on the sector, intended activities, and expected results. It is important to remember that the descriptions, scope, and magnitudes of these activities are subject to change as the work plan is implemented.

Certain activities in the work plan span multiple sectors. For example, strengthening the institutional capacity of enterprises, associations, and cooperatives is a potent and cross-cutting intervention. Support for expanded access to finance by members of each value chain is also seen as cross-cutting. Some of these activities are addressed in their individual sections, but are recognized as project-wide initiatives. Others are included in the chapter on General and Communication activities.

To implement this work plan, PRICE will provide technical assistance, training, and other support which is conducive to value-chain development. This support, through PRICE, will be provided to individuals and groups of farmers and entrepreneurs whose commitment will be verified by their willingness to cost-share in proposed interventions.

PRICE will continue to work closely with the Ministry of Commerce and the Business Promotion Council to assist in implementation of the “Technical Assistance Proposal for Bangladesh Economic Growth Program.”

To avoid redundancy, facilitate leverage, and amplify impact, PRICE will coordinate with a number of other projects in Bangladesh, both USAID and other donor-funded, as well as with Bangladeshi public and private institutions. The detail of this collaboration can be found in the chapter on Collaboration with other Projects and Institutions.

The final two chapters of this Work Plan are the Performance Monitoring Plan – including annual and quarterly targets -, and the proposed Budget.

C. Methodology

PRICE followed a bottom-up approach to formulate its FY 2010-2011 work plan. A series of workshops and meetings with partners and beneficiaries were held in each of the three sectors. The objectives of these workshops and meetings were to make an efficient, effective, and relevant work plan that incorporates the inputs of the partners across each sector’s value chain.

For horticulture and aquaculture workshops were held in Bogra and Jessore and in Mymensing for just aquaculture. During these workshops, participants discussed the major constraints and challenges of their sector and suggested interventions to overcome these constraints. Group discussions on the results of the suggested activities were held. The input received from these partners became the foundation for the work plan. A total of 12 horticulture partners and 49 aquaculture partners participated in these workshops.

The leather sector team met with experts, value chain actors, academics, service providers, associations, government officials, development partners, and stakeholders (including industry leaders from both large companies and SMEs) from the sector. The purposes of the meetings were to get feedback on the effectiveness and efficiency of the existing interventions, and to get recommendations for the upcoming year’s activities. Meetings were held on a small group and individual basis. Input from these 40 different stakeholders became the basis for their work plan.

D. Equity Integration Activities

PRICE is a pro-poor project, supporting economic development with equity. To do this, PRICE works with and supports key economic agents and has adopted a value chain approach for enhancing the competitiveness of its target sectors. One of the key elements of this approach is to facilitate teamwork among value chain actors to maximize wealth creation across the chain (rather than profit maximization by any individual player). This newly created wealth is then shared among the actors with greater equity, increasing the sustainability of the value chain.

To ensure it is being socially responsible, PRICE takes a multi-layered approach with its partners in each sector. PRICE focuses on institutional strengthening, promoting the development of local skills and services, encouraging adherence to improved labor practices, and promoting responsible agricultural practices. An important focus of PRICE interventions is to render economic benefits and transfer skills among women and young adults.

PRICE has adopted this approach to accomplish broad-based economic development through sector transformation, rather than only achieving its targets for sales, jobs, and investments. In order to ensure the efficient implementation of the PRICE equity approach, the project will undertake the following:

- Incorporate equity and compliance clauses in the memorandums of understanding with development partners (enterprises, associations, cooperatives, etc.).
- Support training on social compliance and equity issues for partners and their employees.
- Organize targeted equity integration training for the entire PRICE staff.
- Adopt policies to ensure that gender is considered prior to the allocation of PRICE resources.

SECTOR CAUSAL MODELS

I. Horticulture

II. Aquaculture

a. Fish

b. Shrimp

III. Leather Products

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
Crop: Potato				
Limited availability of standard seeds for table and industrial potato leads to poor yields.	<p>Increase supply of quality seeds for table potato and varieties of industrial potato in the country.</p> <ul style="list-style-type: none"> a. Provide technical support in operation and establishment of tissue culture labs for production of disease-free in-vitro potato plantlets. b. Build capacity of lab technicians engaged in plantlet production in tissue culture lab. c. Train field technicians, workforce, and contract farmers in production of tuber lets and breeder seeds of potato seed growing organizations. d. Train of workforce and contract farmers for production of high-quality disease-free foundation seeds of eight enterprises/ companies from tuber-lets. e. Provide field-level technical support in production of disease-free certified seeds. f. Work in collaboration with Seed Certification Agency for proper certification of potato 	<p>Capacity of 10 potato seed enterprises increased for producing potato seeds.</p> <p>Efficiency of tissue culture laboratories is increased.</p> <p>Field production techniques are captured by the trained personnel engaged in production.</p> <p>Disease free seed production initiated.</p> <p>Seed Certification Agency started providing certification to partner companies.</p> <p>Seed producers access to cold storage enhanced</p>	<p>5-6 seed companies operating at the potato growing area produce truthfully labeled and certified seeds, keep in proper storage and market their products.</p> <p>Sales from certified and TLS seed potato -USD 500,000.</p> <p>USD 1.0 million worth mini-tuber, plantlets, breeder and foundation seed produced and sold.</p> <p>500 full time jobs created.</p> <p>Seeds are kept in better storage.</p>	<p>Copy cats emerged</p> <p>Market share for quality seeds increased to more than 5% in the targeted region.</p> <p>Industrial potato seed produced in the country is able to meet 25% the demand of the industry in the project life.</p>

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
	<p>seeds produced by the partner organizations.</p> <p>g. Facilitate linking seed producers with specialized cold storage suitable for seed potato.</p> <p>i. Assist partner enterprises in branding and marketing of their products (potato).</p>			
Disorganized and miniature farms lack economies of scale leading to limited access to inputs, credit and markets.	<p>Promote contract farming system for seed and table potato farmers.</p> <p>a. Provide technical support to sponsor entrepreneurs in designing an efficient contract farming system.</p> <p>b. Assist sponsor entrepreneurs to train relevant staff and farmers on improved farming practices and their respective roles and responsibilities under contract farming systems.</p> <p>c. Link entrepreneurs with reputed suppliers of farm inputs.</p> <p>d. Support three partners to reach 1,200 seed potato contract farmers and assist four partners to establish contract farming with 2,500 farmers and provide technical</p>	<p>1,200 seed potato and 2,500 table potato farmers are brought under outgrowing schemes.</p> <p>Two new outgrowing companies developed and their capacity increased.</p> <p>Contract farmers are trained on approaches, improved practices and roles and responsibilities of each party.</p> <p>15 entrepreneurs and farmers visit neighboring countries (India, Thailand) to get first-hand knowledge of the system.</p>	<p>Potato farmers have better access to inputs and market linkage.</p> <p>Per unit area production increased by more than 25% in the assisted farms.</p> <p>Sales for the assisted farms increased by USD 1 million.</p>	<p>Farmer's income and quality of life improved.</p> <p>Copy-cats of potato contract farming system start emerging.</p>

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
	<p>assistance.</p> <p>e. Support exposure visit to sponsor entrepreneurs and farmers to understand successful contract farming ventures.</p>			
<p>Farmers' inadequate knowledge and skill of modern potato farming leads to yield loss.</p>	<p>Promote modern potato farming practices.</p> <p>a. Facilitate training on improved potato production technology for farmers and workforce.</p> <p>b. Extend farm-level technical support for crop and disease management.</p>	<p>3,000 potato farmers trained on modern farming practices including disease management.</p> <p>Farmers are equipped with more knowledge and skill in potato production and pest management.</p>	<p>Farmers put their knowledge and skill into practice.</p> <p>USD 1 million in sales from table and processed potato.</p> <p>250 full time jobs created.</p>	<p>More and more potato farmers gain skills in modern farming practices.</p>
<p>Limited availability of industrial potato leads to slow growth in potato processing industry</p>	<p>Increase the supply of industrial potato.</p> <p>a. Assist association and enterprises to initiate organized production of industrial varieties (Lady Rosetta, Courage, and Asterix) of potato through arranging trainings on relevant farming practices and other technical assistance.</p> <p>b. Link potato producer associations and enterprises to input suppliers.</p>	<p>Two enterprises take initiative to produce industrial potato.</p> <p>Backward linkage established for sourcing raw materials.</p>	<p>1,000 MT of Industrial potatoes are produced for processing.</p> <p>Supply of industrial potato ensured for a company.</p> <p>Sales: \$100,000</p>	<p>The potato sector becomes enriched with the enhanced availability of industrial potato.</p>

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
Poor post-harvest handling and absence of value addition initiatives lead to substantial loss of product quality and revenue from sales.	Promote standard post-harvest practices and value addition activities. <ul style="list-style-type: none"> a. Organize training for association farmers and enterprises on responsible post harvest practices and simple value addition techniques e.g. cleaning, grading, and sorting. b. Support establishment of marketing links with potato producing associations, enterprises with processing industries. 	<p>Farmers become aware of responsible post-harvest practices.</p> <p>Linkage established with one processing industry.</p>	<p>Increasing number of farmers using improved PH practices.</p> <p>Processing farms are linked with the out growers schemes and associations.</p> <p>Demand for and availability of processed potato products increased.</p> <p>Locally produced crisps and frozen French fries are available in the market.</p> <p>Revenue from sales increased across the sector. Investments are increased, more jobs are created.</p> <p>Investment: USD 100,000</p> <p>Sales : \$1 million</p> <p>Jobs: 500</p>	<p>Export of processed potato gains momentum.</p> <p>Income enhanced across the value chain.</p>
Crop: Eggplant				
Wide scale use of low quality seeds of local varieties leads to poor harvest.	Promote access to high-yielding varieties (both local and introduced) and FSB-resistant varieties of eggplant seeds. <ul style="list-style-type: none"> a. Link PRICE assisted farms with BARI, Agricultural Biotechnology Support 	<p>Farmers identify high yielding local varieties and initiate production.</p> <p>PRICE supported farms are linked with BARI.</p> <p>Capacity of four seed companies increased to</p>	<p>Assisted seed companies start producing modern variety open pollinated seeds and market the same in good packaging following seed law.</p> <p>Trained farmers start using improved seeds.</p>	<p>Demonstration effect draws more farmers into similar practices (as the trained farmers).</p> <p>Overall farm level productivity increased by about 5%.</p> <p>Income for the farmers</p>

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
	<p>Project II for advance trial of FSB-resistance transgenic varieties.</p> <p>b. Support egg plant seed producers with technical assistance for producing high yielding locally adapted seeds of egg plant.</p> <p>c. Establish demo plots of high yielding varieties.</p>	<p>produce quality eggplant seeds suitable for both seasons.</p> <p>200 eggplant seed farmers are trained to produce good quality seed; growth and yield test are conducted in the field.</p>	<p>Productivity increased by more than 15% among the assisted farms.</p> <p>Sales Increased: USD 400,000</p> <p>Jobs: 100</p>	<p>increased by 10%.</p>
	<p>Improve seedling raising technology.</p> <p>a. Support training to farmers and seedling-raisers on grafting techniques, sourcing wild eggplant seeds for raising seedlings, etc.</p> <p>b. Establish demonstrations of grafted eggplant with associated technologies.</p>	<p>Farmers and nurserymen are trained on grafting and seedling rising.</p> <p>300 eggplant farmers are exposed to the grafting technologies and appreciate its effect.</p>	<p>Good quality seedlings are raised and transplanted in increased numbers.</p> <p>Plants and fruits are less susceptible to pests. Productivity increased.</p>	<p>Income for eggplant farmers increased.</p> <p>Increasing number of new farms start using quality seedlings paving the way towards high level of productivity.</p>

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
Farmers lack of knowledge and farming skills leads to low productivity and poor harvest	Improve knowledge and skill of eggplant farmers on modern production techniques. <ul style="list-style-type: none"> a. Train the eggplant farmers on production technology. b. Arrange hands on coaching for the farmers on technical issues during production period. c. Promote use of balanced fertilizer for sustainable yields. 	1,500 eggplant famers are trained on modern production techniques.	Increasing number of farmers are following improved cultivation methods. Sales 300, 000 USD. Jobs: 1.200	Productivity of assisted eggplant farmers increased by 15%. Income increased significantly.
High frequency of pest attack leads to significant crop damage.	Promote improved pest management for eggplant farmers. <ul style="list-style-type: none"> a. Organize training on IPM technology for egg plant farmers. b. Support establishing demonstrations of cultivation using IPM approach. c. Support organizing IPM field school with egg plant farmers d. Facilitate link with bio-control agent supplier targeting safe eggplant production. 	1,500 eggplant farmers are trained on improved pest management techniques.	Less damage to crops and enhanced yield per acre. Increased sales : USD 150,000	Eggplant farmers' associations are running efficiently in managing integrated pest management approach resulting minimum crop loss. Income of the eggplant farmers increased. Crowding-in happens.

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
Excessive application of toxic pesticides poses threat to human health and ecosystem.	Promote a market for safe eggplant. <ul style="list-style-type: none"> a. Link the producers of safe eggplants with exporters, local wholesalers and super-shops. b. Support awareness development campaign on consumption of safe eggplant among the eggplant consumers. 	<p>Linkage workshops/meetings between producers of safe plants and downstream actors take place</p> <p>Suppliers take part on the awareness campaign of consuming safely produced eggplant.</p>	<p>Safe eggplant is made available in the market.</p> <p>Consumers understand the benefit of consuming safe eggplant and are ready to pay premium price for the products.</p> <p>Revenue from sales for the safe eggplant producers increased.</p> <p>Sales: \$ 100,000</p>	<p>The consumers have the option to buy safe eggplants.</p> <p>The threat to human health and the ecosystem is reduced.</p>
Crop: Mango				
Farmers inadequate knowledge of and skills on production of mango management lead to low productivity	Enhance farmers' capacity of mango production management. <ul style="list-style-type: none"> a. Assist association and enterprises to introduce improved farming techniques and better crop management among its members. a. Train farmers on improved production techniques, orchard management and adoption of appropriate prophylactic measures. b. Arrange technical support to mango farms in production season. 	2,000 mango farmers trained on crop production management.	<p>Mango farmers start to adopt improved crop management practices.</p> <p>USD 500,000 of increased revenue for the assisted mango farms.</p> <p>Jobs: 400</p>	Number of farms adopting improved practices is growing rapidly, resulting in increased yield and enhanced income
Disorganized and small	Promote contract farming	Identified and assisted	One new contract farming	Short and robust value chain

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
orchards lead to diseconomies of scale and resultant in-competitiveness for access to technology, inputs and market.	for mango production. <ul style="list-style-type: none"> a. Assist new enterprises in designing a suitable model for contract farming for mango production. b. Support organizing the initiative through capacity building of the sponsor entrepreneurs. c. Assist entrepreneurs to help farmers in understanding the contract farming approach through yard meeting and short term training. c. Establish linkages with quality input suppliers, banks and other service providers. 	enterprises are ready to launch mango outgrowing schemes.	system started operation with 500 mango farmers. USD 80,000 in sales. Jobs: 150	starts paying dividend among its actors. Demonstration effect draws more such system into operation. The competitiveness of the whole sector is enhanced significantly.
Aging orchards result in poor and declining yields	Promote rejuvenation of new mango orchard. <ul style="list-style-type: none"> a. Assist in the production of elite planting material from mother orchard through technical skill training to nurserymen. b. Create awareness among farmers about the right planting material and encourage establishment of new orchards. 	Nurserymen are trained on producing elite planting material. Farmers are aware of using better planting material.	Elite planting materials are produced for planting.	New orchards are established with elite planting materials
Improper pest management results in crop damage as well as poses threats to	Enhance farmers' awareness, knowledge, and skill to adopt appropriate pest	A mango post management manual is developed.	500 mango orchards are brought under new pest	Sector productivity increased by around 5% in project life.

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
human health	<p>management schemes required for producing safe and quality fruits cost effectively.</p> <p>a. Facilitate training for farmers, workforce and seasonal lessees on pest identification, appropriate pesticide and doses, proper application method and interval.</p>	A calendar for year round pest management is in place.	<p>management approach</p> <p>Productivity of orchards, practicing improved pest management increased by 20-25%.</p> <p>Increased sales: USD 250,000</p>	Income of the mango producers enhanced.
Poor post-harvest handling practices result in significant quality and quantity loss.	<p>Promote responsible post harvest handling for mango farmers and traders.</p> <p>a. Train farmers on proper mango harvesting methods.</p> <p>b. Facilitate demonstration of hot water treatment techniques for different varieties of mango using hot water treatment plant for proper ripening.</p> <p>c. Organize demonstrations of proper cleaning, drying, grading and packing for farmers/traders.</p> <p>d. Demonstrate use of proper packaging and containers.</p>	<p>Association farmers are trained on post-harvest handling practices.</p> <p>Farmers are aware of the importance of hot water treatment for longer shelf life; proper ripening technology is known to farmers.</p> <p>Farmers are aware of using proper packaging material and containers.</p>	<p>Mango farmers adopt responsible post-harvest handling and adopt use of hot water treatment plant.</p> <p>Quality of the fruit is enhanced.</p> <p>Revenue from sales increased by</p> <p>USD: 300,000</p> <p>Jobs: 150</p> <p>Investment: USD 50,000</p>	Post harvest losses reduced by 5%.

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
Widespread use of carbide (a toxic ripening agent) poses significant threat to human health.	Promote a market for carbide free mango. <ul style="list-style-type: none"> a. Assist associations to market carbide free, properly ripened mango by helping them opening outlets in important locations. b. Support an exposure trip to India for association members to learn about mango post-harvest handling and marketing operations. 	<p>Mango farmers associations open new outlets for marketing of carbide free properly ripen mangoes.</p> <p>Farmers and entrepreneurs undertake visit to India to see the mango marketing operation.</p>	<p>Demand for carbide free mango is on rise.</p> <p>Revenue from sales increased by USD 50,000</p>	<p>Carbide free mango becomes available in the market.</p> <p>Consumers' access to quality mango increased.</p>
Cross Cutting Issues				
Horticulture farmers lack access to quality compost and other organic fertilizer leads to yield loss (both in terms of quantity and quality)	Promote production and marketing of quality organic fertilizer. <ul style="list-style-type: none"> a. Assist four bio- fertilizer companies improve their technical efficiency in producing good quality bio-fertilizer. b. Support farmers in establishing linkage with bio-fertilizer suppliers. c. Organize training for farmers, dealers, and retailers on the importance of environment friendly bio-fertilizer and its effects on yield and profitability. d. Assist in establishment of 	<p>Farmer's access to organic fertilizer improved.</p> <p>1,500 farmers trained on use of organic fertilizers.</p>	<p>Increasing number of farmers using organic fertilizers in right quantity.</p> <p>Sales of assisted farms increased by USD 300,000.</p> <p>Sales of organic fertilizer USD 100,000.</p> <p>Jobs: 250</p>	Sustainable productivity is visible and soil health is improved.

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
	<p>demonstration with organic fertilizers to promote the use and proper application method.</p> <p>e. Assist enterprises in the introduction of soil nutrition information, fertilizer and pesticide use cards among farmers.</p>			
<p>Inadequate availability of good quality vegetables seeds for intercropping and year round vegetable cultivation in potato and eggplant based cropping system leads to unrealized production potential of horticulture crops year round.</p>	<p>Facilitate production of good quality, high yielding varieties of vegetable seeds.</p> <p>a. Provide technical training to seed growing farmers through seed producing enterprises.</p> <p>b. Facilitate in ensuring seed quality during production, post production and processing through technical support.</p> <p>c. Strengthen and establish a strong market network.</p> <p>d. Assist in dealers' training, yard meetings, demonstrations and field days.</p>	<p>Seed growing farmers are better informed and skilled in seed production technology.</p> <p>Seed producing enterprises are getting better seeds and adopting better processing.</p> <p>Marketing systems developed by individual companies.</p> <p>Seed dealers are aware of good seeds.</p>	<p>Supported seed companies started producing good quality seeds of high yielding varieties and market in good packaging following seed law.</p> <p>Trained farmers start using improved seeds.</p> <p>Demonstration effect draws more farmers into similar practices (as the trained farmers).</p> <p>Sales from seeds USD 50,000.</p>	<p>Quality seed supply enhanced by 5% in the project area.</p> <p>Vegetable production increased by 20% of the project farmers, resulting better income.</p>
<p>Poor access to post-harvest handling leads to substantial crop damage</p>	<p>Establish field pack station for proper post-harvest handling of vegetables.</p> <p>a. Assist an enterprise in designing and operating a</p>	<p>Establishment of a pilot field pack station for better post harvest handling.</p>	<p>Horticulture farmers start using the center; become aware of post-harvest handling and simple value addition techniques and their</p>	<p>Copy cats of facilities emerge. Farmers use it as a standard practice; quality of horticulture products enhances, post-harvest</p>

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
	standard field pack station.		benefit.	losses reduced.
Poor knowledge in selection, use, and application of pesticide and other compliance requirements.	<p>Promote safe horticultural produce at the field and factory.</p> <ul style="list-style-type: none"> a. Facilitate farmers' training to promote good practices, IPM, and biological post management. b. Assist in organizing campaigns on the consumption of safe vegetables. c. Facilitate a campaign on safe use of pesticide and plant protection measure in collaboration with input selling companies, superstores, exporters and NGOs. d. Assist enterprises in establishing traceability of safe vegetables through proper recording system at every stage. e. Support training of work force, vendors, and horticultural processors on food quality, safety, and compliance. 	<p>1,000 trained farmers that are aware of the good practices, traceability, IPM and the benefits of using these.</p> <p>100 workforce, vendors and processors benefitted by learning about HACCP and other compliance requirements.</p>	<p>Trained horticulture farmers start using good practices, IPM techniques, keeping records and reap the benefits.</p> <p>Traceability in safe vegetable production system introduced.</p> <p>USD 300,000 from safe vegetables.</p> <p>Workforce using HACCP guidelines in the processing plants.</p>	<p>Demonstration effect draws new farmers to good cultivation practices, IPM and records.</p> <p>Product quality improved.</p> <p>Farmers receive better prices.</p> <p>Safety compliance enhanced.</p>
Inadequate access to international market and lack of understanding on	Establish linkages with horticulture producers and processors to	Bangladeshi processors and exporters are more informed about international market	Access to international market for Bangladeshi produce is improved.	Bangladeshi produce enters into new markets following the buyer's requirements.

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
requirement of export market.	internationals market. a. Promote Bangladeshi products — processed and fresh — through participation in fairs and exhibitions.	requirements.	USD 400,000 from local market and export of processed vegetable products. Jobs: 20	
Limited access to finance	Facilitate increased access to finance. a. Organize workshops with partner enterprises and financial institutions. b. Increase number of out-grower schemes from three to ten to increase the provision for value chain financing. c. Engage with microfinance organizations to develop horticulture sector-specific loan product.	Number of out grower schemes increased to six in potato and mango Financial institutions start offering loans to enterprises and farmers. Two microfinance organizations develop potato and mango crop based loan products.	Increased numbers of farmers are having access to finance. Investment increased: USD 100,000 Increased in sales revenue: USD 250,000	Access to finance to project targeted farmers is ensured and many other agricultural activity supported financing agencies are offering new product for horticultural farmers.
Poor access to market information for farmers.	Support improvement of existing market information system. a. Establish two farmers information centers for dissemination of market information.	A pilot market information system in place.	Farmers' (and other value chain actors) access to market information improved.	Farmers' access to market enhanced. They receive better prices for their produces. Income enhanced.
Weak associations /institutions are unable to deliver required services to the enterprises leads to inefficient and often	Strengthen organizational capacity of potato, eggplant, and mango related associations. a. Facilitate training on	The management committees of two associations are aware of the rules and regulations and services to be provided	The horticulture based enterprises are better served with business development services.	The horticulture sector becomes more competitive.

Causal Model – Horticulture

Constraints	Interventions	Outputs	Outcomes	Impacts
unsustainable supply chain	<p>organizational management and obligations as per law to the executive committee members and staff.</p> <p>b. Support training to association members on their responsibility, organizational discipline and system.</p> <p>c. Support training for the office bearers on accounting, record keeping and maintaining a simple database (on association business activities, services rendered , market info etc).</p>	<p>to the members.</p> <p>Three associations are better equipped with rendering required services to its member enterprises</p>	<p>The enterprises become more competitive in serving their customers.</p> <p>Productivity, production and revenue are increased.</p> <p>Sales: USD 500,000</p> <p>Investment : USD 100,000</p>	

Causal Model – Aquaculture – Fish

Constraints	Interventions	Outputs	Outcomes	Impacts
Widespread use of genetically degenerated fish seeds (because of inbreeding), leads to low farm yields.	Increasing farmers Access to inbred free seeds <ul style="list-style-type: none"> a. Link hatcheries to inbred free brood sources b. Assist production and inbred-free fish seeds c. Assist linking fish-seed traders' to the hatcheries producing inbred free seeds d. Promote perennial use of fry and fingerlings for year round production 	<p>PRICE supported fish hatcheries get access to inbred free broods, better brood management, and feedback from associated farmers using seeds from hatcheries.</p> <p>Fish farmers (members of PRICE partner associations) become aware of the benefits of using quality grade seeds</p>	<p>Supply of inbred free fries and fingerlings increased.</p> <p>Nursery owners procure quality spawn and nurse those to quality fingerlings.</p> <p>More farmers start stocking quality seeds.</p>	<p>Productivity increased by 10-15% based on state of hatcheries</p> <p>Production and revenue from sales enhanced resulting new jobs and increased income for the hatcheries and nurseries</p> <p>Sales: \$1.5 million</p> <p>Jobs : 500 Full Time Equivalent (FTE)</p>
Farmers inadequate access to quality feeds leads to sub optimize productivity in fish farming.	Facilitate enhanced access to quality feeds for the fish farmers <ul style="list-style-type: none"> a. Assist holding workshop for input sellers and farming groups c. Support the training to association members on joint procurement of feeds and other inputs 	<p>Feed millers get easy access to quality feed ingredients and formula for cost effective feed production</p> <p>Farming groups collectively and cost-effectively procure quality feeds.</p>	<p>Production, supply and uses of quality feed increased.</p>	<p>Productivity increased by around 15% for the assisted farms resulting enhanced revenue and increased income for the farmers.</p> <p>More farmers are aware of and use quality seeds resulting production increase.</p> <p>Sales: \$1.5 million</p> <p>Jobs :500 FTE</p>

Causal Model – Aquaculture – Fish

Constraints	Interventions	Outputs	Outcomes	Impacts
Insufficient farming IKS leads traditional low yield farming .	Promoting Good Aquaculture Practices (GAqP): <ul style="list-style-type: none"> a. Support trainings on improved productivity b. Promote integrated farming for round the year production c. Promote fish farming in floating cages in open waters d. Studies on fish consumption at household level d. Arrange in-country study trips to lead farmers/ association /cooperatives leaders to relatively better productive areas. e. Assist in exposure trips of highly productive farmers and other value chain members to foreign trips for hands on experiences (Thailand/& Vietnam/& India). 	<p>5,000 traditional farmers are trained on GAqP and improved/ high density /semi-intensive aqua farming techniques.</p> <p>15-20 lead farmers acquired first- hand experience on intensive farming environments and practices.</p>	<p>Farmers put their knowledge into practice and productivity increases by 15-20% for the trained farmers of partner associations.</p> <p>5-6 new culture species introduced.</p>	<p>Income for the aqua farmers increased significantly (10-15%).</p> <p>Family based intake of raised fish increased by 20-30%.</p> <p>Sales: \$ 2.5 m</p> <p>Jobs : 1000 FTE</p>
Lack of farming integration under diverse agro-ecological conditions for round the year cropping leads to sub optimal farm yield.	Promote integrated farming for year round crop production <ul style="list-style-type: none"> a. Assist training on integrated aqua-farming and diverse aquatic crop production 	Association members are trained on techniques for optimal use of seasonal water body (or farmlands) for increased productivity year round.	Incubate efficient and effective utilization of water bodies, embankments for diverse crop production round the year.	<p>Production increased by 10-20%.</p> <p>Income for the community based farmer's enhanced, sustainable feed security ensured to family based</p>

Causal Model – Aquaculture – Fish

Constraints	Interventions	Outputs	Outcomes	Impacts
	b. Support crop-rotational fish culture and horticultural crop farming on pond embankments.			farmers. Sales: USD 1 million Jobs: 500 FTE
Poor perception of unconventional /alternative aquaculture resulting lost opportunities in producing and marketing of high value fish species using huge unutilized and underutilized resources.	Promote fish farming in floating cages in open waters. a. Organize training for farmers and fisherman on floating cage based aquaculture in rivers and hoar areas. b. Facilitate exposure visit for the potential entrepreneurs to the modern cage farming practicing areas.	Farmers become aware of the economic potential of floating cage farming. 1000 farmers will receive training on cage farming techniques.	400-600 new cage farming units will be in operation producing premium grade and high price stuffs for local consumptions and export Investment : \$ 150,000 Sales: \$2.5 million	This alternate aquaculture generates new jobs, draws new investments and creates new wealth. Jobs: 300 FTE
Inadequate access to quality inputs as well as limited marketing opportunities for smallholder farmers leads to low profitability and resultant loss of momentum in fish farming	Facilitate integrating smallholder farmers' into group procurement and group marketing a. Support improvement of farmers' backward linkage. b. Facilitate integrating smallholder farmers' into growing market of aqua farm products.	Partner association members become aware of the benefit of group procurement. 2000 smallholder fish farmers are trained on group marketing in the 2010-11 FY 10 linkage workshops held (for linking the association based small holder farmers with the wholesalers)	Group procurement creates access to quality inputs for micro and small enterprises in cost effective manner. 5% lower cost-effective prices of inputs for farmers Increased options and economies of scale enhances their bargaining power. 15-20% partner members practicing group marketing	Productivity enhanced, and investment increased for the smallholder farmers; new jobs created. Investment : USD 25,000 Sales USD: 500,000 Jobs: 500 3-4% better prices for farmers for group marketing
Weak association, poor	Strengthen the institutional	4-6 associations/cooperatives	Performances of the	Productivity and revenue from

Causal Model – Aquaculture – Fish

Constraints	Interventions	Outputs	Outcomes	Impacts
member services threaten sustainability	capacity of associations/cooperatives <ul style="list-style-type: none"> a. Help association to develop a basic information management system. b. Assist associations to identify services required by members c. Support them in formulating and rendering the services, efficiently, effectively and sustainably. 	receive institutional development support.	associations improve. Members of the associations receives required services cost effectively.	sales increased by 15%; farmers invest additional amount to their business. Sales: \$1 million Investment: \$100,000
Knowledge gap on hygienic dry fish production and marketing leads to wide scale prevalence of poor quality , unhygienic and adulterated dry fish in market	Promote a market for hygienic dry fish. <ul style="list-style-type: none"> a. Support training for the members of partner associations on HACCP, food safety, packaging, storage techniques and group marketing. b. Organize linkage workshops between association members and wholesalers/exporters. 	600 smallholder dry fish traders are trained in hygienic dry fish productions, packaging and marketing. 2000 workforce developed on handling and manufacturing of hygienic dry fish production. 2 linkage workshops held (for linking the association based smallholders with the wholesalers).	Dry fish producers are aware of the benefits of hygienic dry fish production. Dry fish producers are better linked with the forward market.	10-15% increased production of hygienic dry fish Sales/export revenue increased by around 15%. Sales: \$ 2 million
Few value added products leads to insignificant export quantity	Support fish processors for value added product development. <ul style="list-style-type: none"> a. Linkage workshop with producers and processors for 	Processing staff are trained and equipped with the knowledge and skill for VAP development. Producer and buyers' linkage	VAP export increased significantly. Two processing plants buying fish from farmers for export.	Investment, sales and income of farmers, processors and exporters increased. Investment: \$50,000

Causal Model – Aquaculture – Fish

Constraints	Interventions	Outputs	Outcomes	Impacts
	<p>supply of raw materials</p> <p>b. Explore value addition products of fish for export</p> <p>c. Promote processed fish products in the ethnic market abroad.</p>	<p>established.</p> <p>Managerial staff in processing industry are trained.</p>		<p>Sales: \$ 1.5 million</p> <p>Jobs: 200 FTE</p>
Inadequate access to finance limits growth	<p>Support access to finance initiatives</p> <p>a. Arrange linkage workshops with banks and financial institutions to incubate credit to farmers/enterprises.</p> <p>b. Assist farmers/enterprises to prepare business plans.</p> <p>c. Link farmers/enterprises with micro-finance sources through workshops, meetings etc.</p> <p>d. Strengthen value chain financing options through arranging fares/workshops for value chain actors.</p>	<p>At least six fish associations and/or cooperatives receive assistance to participate in linkage workshop banks/ FIs.</p> <p>Aqua farmers are more knowledgeable on the requirements for loans/credits.</p> <p>Better linkage with the Banks/ FIs.</p>	More farmers benefit from access to bank loans.	<p>Investment for aqua farmers enhanced. Productivity and sales increased. New jobs are created. All this means more income for the farmers.</p> <p>Investment: USD 300,000</p> <p>Jobs: 500 FTE</p> <p>Sales: USD 1 million</p>

Causal Model – Aquaculture – Shrimp

Constraints	Interventions	Outputs	Outcomes	Impacts
Farmers' Inadequate access to screened Bagda Post Larvae (PL) leads to high incidence of virus (white spot syndrome virus) outbreak.	Promote a market for virus free screened PL <ul style="list-style-type: none"> a. Strengthen the capacity of PCR Lab. b. Scaling up use of screened PL (SPL) 	<p>Capacity of the PCR lab enhanced.</p> <p>Farmers become aware of the benefit of using screened PL.</p>	<p>More farmers using screened PL.</p> <p>Increased use of screened PL leads to increased productivity.</p> <p>Use of Screened PL reduce occurrence of disease outbreaks.</p> <p>Further scale up of SPL uses.</p>	<p>A sustainable and growing market for screened PL leads to increased production, revenue and investment in the sector</p> <p>Production, sales increased by 20% and investment increased by 10% for the assisted farms.</p> <p>Sales: \$ 1.5 million</p> <p>Investment: \$ 100,000</p> <p>Jobs: 400 FTE</p>
Farmers lack knowledge and technique to conduct shrimp farming across the season often leads to single cropping.	Promote over-wintering of screened bagda PL. <ul style="list-style-type: none"> a. Support farmers training on overwintering (OWPL) and benefits. b. Popularize OWPL through workshops, leaflets posters etc. 	<p>Farmers become aware of OWPL.</p> <p>Farmers are trained on over wintering tech-know-how.</p>	<p>Increased uses of OWPL</p>	<p>Two cropping and perennial shrimp farming emerges resulting 50% increased income for the firms adopting the technology.</p> <p>Sales: \$ 1 million</p> <p>Jobs: 500 FTE</p>
Farmers' Inadequate access to premium golda HPL for integrated farming leads to inefficient use of the water bodies.	Promoting the use of quality Golda HPL for bagda farmers: <ul style="list-style-type: none"> a. Link the Bagda farmers with golda hatcheries producing quality HPL. 	<p>Integrated bagda farmers' have increased access to quality golda HPL as well</p>	<p>More farmers have access to quality golda HPL.</p> <p>Integrated farming with crop-rotational bagda/golda/fish increased.</p> <p>Investment : 100,000</p>	<p>Vertical increases in diverse biomass production for export and domestic consumption leads to increased income for the aqua farmers.</p> <p>Sales: \$ 500,000</p> <p>Jobs : 200 FTE</p>

Causal Model – Aquaculture – Shrimp

Constraints	Interventions	Outputs	Outcomes	Impacts
Farmers' poor perception about feed quality coupled with their inadequate access to quality feeds for shrimp farming leads to slow growth of the animals resulting poor harvest.	Promote a market for premium quality feed for the shrimp farmers. <ul style="list-style-type: none"> a. Strengthen the capacity of the feed mills to produce premium feeds. b. Train farmers on feed quality and the importance of using high grade feed in shrimp farming. c. Organize linkage building workshops for feed mills, farmers' associations and outgrowing depots. 	<p>Farmers aware of using quality feeds</p> <p>Farmers' access to premium quality feeds enhanced.</p>	<p>20% farmers are using quality grade feeds</p>	<p>20% increase in yield for the farmers using premium feeds</p> <p>Sales: \$ 1million</p> <p>Jobs : 200 FTE</p>
Farmers Lack of knowledge and skill for adopting improved farming practices leads to low yield.	Promoting Good Aquaculture Practices (GAqP): <ul style="list-style-type: none"> a. Farmers training on followings: <ul style="list-style-type: none"> - Improved farming techniques - Responsible farm management - High density, intensive/semi intensive shrimp farming b. Scaling up improved farming through <ul style="list-style-type: none"> - Exposure trip of lead farmers to farms using high density semi intensive shrimp farming. -Exposure trips of farmers to high density intensive shrimp farming facilities in Vietnam/ 	<p>About 8,000 traditional farmers are trained on GAqP and improved shrimp farming techniques.</p> <p>15-20 lead farmers acquired first- hand experience on intensive farming environments and practices.</p>	<p>Farmers put their acquired knowledge into practices.</p> <p>Productivity increased.</p>	<p>New sales and jobs created.</p> <p>Sales: \$ 1.5 million</p> <p>Jobs : 500 FTE</p>

Causal Model – Aquaculture – Shrimp

Constraints	Interventions	Outputs	Outcomes	Impacts
	Thailand. c. JIFSAN and FDA training and visits			
Disorganized miniature farms lacks scale and access necessary to adopt improved farming practices.	Promote contract farming system. a. Design outgrowing mechanisms b. Support training to execute outgrowing and VC financing	Efficient out growers' scheme evolves in shrimp sector. Farmer's become knowledgeable about their roles, responsibilities and benefits in contract farming schemes.	10, 000 shrimp farmers are brought under out growing schemes. Productivity of contract farmers increased by 20%, The schemes serve as the building blocks of an efficient traceability system Farmers knowledge base in enhanced	Copy cats emerge. Sector competitiveness increased. Revenue from sales enhanced by at least 20% for the farmers adopting the scheme. Sales: \$ 2 million Jobs: 800 FTE
Lack of traceability	Promote traceability. a. Assist training the entrep. Depots and staff on traceability. b. Create awareness on using traceable inputs	Farmers awareness on using traceable inputs increased.	Traceability in supply chain strengthened. Contamination sources identified and corrective measures ensured.	Export of traceable stuffs increased. Rejection by buyer decreased by more than 50%.
Lack of farming integration leads to underutilization of resources.	Promote crop rotational golda and bagda farming on seasonal basis. a. Support training on integrated golda/bagda farming with fish and vegetables. b. Provide hands-on demonstration on the benefits of	Farmers are trained on farming integration by diverse crop production.	Diverse crop production institutionalized. Effective utilization of resources leads to more production of shrimp, fish and vegetables.	Sales and family consumption increased. Sales: \$ 1 million Jobs: 300 FTE

Causal Model – Aquaculture – Shrimp

Constraints	Interventions	Outputs	Outcomes	Impacts
	crop-rotational farming			
Presence of nitrofurans and other banned substances in farmed prawn leads to frequent rejection of export consignments from buyers end.	Enhance stakeholders' knowledge on nitrofurans issues for farmed prawn/shrimp. <ul style="list-style-type: none"> a. Workshops: source of nitrofurans metabolites in farmed prawn b. Trainer's training to get rid of nitrofurans contamination 	<p>Capacity of the research and testing facilities enhanced.</p> <p>Source of contamination identified.</p>	<p>Research institute capacity build-up on finding banned substances in farmed animals.</p> <p>Farmers awareness on how to get rid of contaminations.</p>	<p>Rejection by buyer decreased by 50%.</p> <p>Shrimp export increased by 2-4 million USD.</p>
Negative perception of buyers on labor practices in shrimp processing industry threatens GSP cancellation as well as import ban from US.	Promote compliance of Labor Law for the shrimp processing plants. <ul style="list-style-type: none"> a. Assist training on local labor law among the workers and managers of shrimp processing plants b. Facilitate visits of USTR and key buyers to shrimp processing plants. 	<p>Value chain actors become more educated on labor law provisions and rights.</p> <p>Buyers are aware of latest status of labor practices.</p>	<p>Processing plants and the whole value chain are more compliant.</p> <p>USTR and buyers' perception of labor practices is based on realistic ground.</p>	<p>Access to international buyers enhanced.</p> <p>Processors, depot owners and farmers get better prices for their produce.</p> <p>Sales: \$ 500,000</p>
Inadequate biosecurity and HACCP compliance in processing plants lead to rejection of consignments, mostly from EU market.	Promote hygiene and standard bio-security in shrimp supply chain. <ul style="list-style-type: none"> a. Facilitate training on bio-security and HACCP depots & processing workers and managers. 	<p>All associated with processing and handling of raw materials are aware of biosecurity and HACCP.</p>	<p>Processing plants and exporters are more compliant on biosecurity and HACCP.</p>	<p>Rejection reduced significantly.</p> <p>Export enhanced.</p> <p>Sales: \$500,000</p>

Causal Model – Aquaculture – Shrimp

Constraints	Interventions	Outputs	Outcomes	Impacts
<p>Lack of adequate Value Added Products (VAP) in shrimp results low volume of exports from the sector.</p>	<p>Promote development of value added products for export markets.</p> <ul style="list-style-type: none"> a. Exposure visits: Processors to Gulf food fair/Brussels or Boston food fair b. Training: development of value added product 	<p>Awareness on diverse VAP development created</p>	<p>Effort to penetration in new markets with new products enhanced.</p> <p>Access to new markets abroad enhanced.</p>	<p>Export revenue from shrimp products increased.</p> <p>Sales: \$ 1 million</p>

Causal Model – Leather Products

Constraints	Interventions	Outputs	Outcomes	Impacts
<p>Lack of skilled workforce (workers and supervisors) limit the sector in achieving additional production and sales. This also discourages new investors in setting up new factories, thus losing opportunities of employment generation and investment.</p>	<p>Develop skills of new workforce (workers and supervisors) by providing technical “on the job” training in the footwear and goods sub sectors.</p> <ul style="list-style-type: none"> a. Partner with industry association and leading enterprises such as LFMEAB, Apex, PICARD etc. in a workforce development programs that takes unskilled workers b. Collaborate with association, LFMEAB and its members in creating a pool of new skilled floor supervisors by providing “on the job” training. c. Partner with industry, GOB, ILO, Swiss contact in assisting the COEL become operational as a new center of workers skill development. 	<p>3,500 new workers and supervisors will be trained in the techniques of footwear and goods manufacturing.</p> <p>Multi partner MoUs will be signed for COEL project.</p>	<p>1,250 trained people (including 30 supervisors) will get full time jobs in the footwear and goods sub sectors.</p> <p>COEL will be operational.</p>	<p>Income generation for newly employed workforce.</p> <p>Sector will increase sales through additional production by 1,250 trained workers this year worth about US\$ 13 million.</p>
<p>Lack of competitiveness of SMEs. Thousands of SMEs in the sector operate with low productivity, outdated machines/production processes, poor practices in management and compliance, and limited</p>	<p>Help SMEs achieve their potential strength by providing assistance in the area of market information/access, business linkages, and product and production technology.</p>	<p>100 SMEs will take part and participate in various initiatives.</p> <ul style="list-style-type: none"> - Linkage program, 10 - Process up gradation, 15 - Exposure visit, 25 - Trade fair 15 - Access to finance 15 - Skill development/ 	<p>5 SMEs will- develop new and/or strengthen linkages with other players.</p> <p>10 SMEs will implement better business practices.</p> <p>5 SMEs will get loans from</p>	<p>Income generation for new workforce.</p> <p>US\$ 50,000 bank loans will be disbursed.</p>

Causal Model – Leather Products

Constraints	Interventions	Outputs	Outcomes	Impacts
access to finance.	<p>a. Skill development training programs for newly recruited unskilled workers for SMEs.</p> <p>b. Partner with lead firms to enhance skills of its SME subcontractors workers and supervisors.</p> <p>c. Linkage workshops to increase market information/ and build new linkages for SMEs.</p> <p>d. Support SMEs in educating ways of reducing inefficiencies from production process through job simplification, waste elimination, and cost control.</p> <p>e. Support SMEs in arranging exposure/ industry visits to local lead enterprises to see better business practices.</p> <p>f. Assist selected SMEs in participating at local trade fairs to get better exposure to local/international market/ information/ clients.</p> <p>g. Organize “Lender-Borrower” meets to reduce gaps in relationship/understanding between SMEs and banks.</p>	enhancement, 20	<p>banks.</p> <p>100 workers will be trained.</p> <p>40 new jobs will be created.</p>	

Causal Model – Leather Products

Constraints	Interventions	Outputs	Outcomes	Impacts
	h. Promote bank visits to SME factories for their better understanding of leather business/potential risks.			
Insufficient capacity in Bangladesh to conduct testing and certification required for the export of leather products.	Strengthen capacity of existing testing laboratory. <ul style="list-style-type: none"> a. Assist BLSC and BCLET lab in obtaining accreditation for more critical quality tests. b. Support BLSC in strengthening capacity to conduct more quality tests. c. Support BLSC/BCLET lab to promote services to industry. 	BLSC will be prepared for another 5-6 tests accreditation. Two promotional interaction meetings will be held for BLSC.	BLSC will increase their industry focus.	Exporting enterprises will get more testing services. BLSC will increase its revenue.
Deteriorated quality of hides/skins due to improper flaying during Qurbani Eid leads to extra wastage in leather consumption during making of finished goods.	Flaying campaigns prior to Qurbani (2010 and 2011) to improve flaying and basic preservation practices. <ul style="list-style-type: none"> a. Partner with Business Promotion Council (BPC), Leaders Of Influence(LOI) program of Asia Foundation, industry in organizing flaying campaigns in Dhaka, Chittagong and other places. 	200 imams will take part in orientation and training program. Display of awareness raising documentary in at least 10 important relevant places.	200,000 people will learn about technique and importance of flaying/preservation.	General quality of hide/skins in terms of cleanliness and flay cut, will improve by 5-10% over last year.

HORTICULTURE

A. Overview and Constraints to Growth

Bangladesh experienced 4.9 percent growth in agriculture in FY2009 due in part to bumper crops. Policy support for agriculture growth has continued, however, agriculture growth is expected to decline by about four percent in FY2010. This decline is due in part to last year's lower output prices of rice at the farm gate and declining area under the Aus and Aman crops due to erratic rainfall. Horticultural production, however, was impressive in comparison with other crops.

Over the last year overall production of vegetables during the period did not change significantly, but production of PRICE's targeted crops was impressive. Potato production set a record for the country at 8.1 million metric tons, and production of eggplant and mango was also strong. The farm gate prices were sometimes disappointing for the farmers, but in comparison with rice, a main crop, profitability was high. Because of the higher profitability margins, numerous farmers will continue to grow fruits and vegetables for cash and consumption, which contributes to the economy as well as food and nutrition security at all levels of society.

Horticulture currently contributes around 20 percent of the GDP (approximately USD \$3.5 billion) and provides year-round employment for more than 40 percent of the rural population, in addition to providing employment for other actors along the value chain. During 2010 increased production of potato, mango, and other crops had a positive impact on the agricultural GDP. Exports have been trending upwards in the past several years, and the government has encouraged it through increased export incentives. Vegetable and fruit exports have increased 4.8 percent and over 200 percent, respectively, over the previous years, showcasing significant gains and room for additional growth.

Despite having more than 100 different kinds of tropical and subtropical fruits and vegetables, only a handful of those have any commercial value, are desired by consumers, and are viewed as important to food and nutrition security. Overdependence on rice as a primary source of nutrition has created a situation where any seasonal crop failure leads to a crisis. Moreover, without any technological breakthrough in rice production, it is extremely difficult to increase the per hectare yield. The solution for this is to look at alternate crops that can feed millions and ensure food security, which is currently being met primarily through rice. Potato has become a second choice to rice as a food for the future, despite it growing in one season (instead of three, like rice). The record potato production of 2010 contributed to offsetting the price of rice and ensuring food security for small and marginal farmers. Despite this recent success of potato crops, there is room to improve productivity of the crops and strengthen the value chain at different points along it. Doing so will increase the incomes of poor farmers, generate employment, and contribute to the economy of Bangladesh.

PRICE has selected potato, eggplant, and mango as the primary crops to focus on, recognizing their role these crops have in alleviating poverty, increase the incomes of farmers, and for their potential of value addition through processing, diversified use, and export. Mango is the leading fruit crop of the country and a major cash crop for the northern region. The quality of mango produced in Bangladesh is of international standard and has export potential. However, the current levels of production barely meet local demand. Productivity needs to improve, and more attention needs to be paid to pest management and post-harvest handling to ensure quality, chemical-free mangoes can reach consumers.

Other important crops in Bangladesh include tomato, chili, carrot, bitter and other types of gourd, okra, cabbage, cauliflower, pumpkins, beans, and several types of leafy vegetables. Current domestic demand is high enough that there is generally no surplus of vegetables for export and the domestic price of the vegetables is higher than that of the international market. The only incentive to export is the 20 percent cash incentive the government is providing to fresh fruit and vegetable exporters.

Processed fruits and vegetables are less than one percent of the total produced. Several potato starch and flake industries have closed due to power shortages, lack of operating capital, high prices of raw materials, and lack of proper processing systems for what is produced on the farms. There is potential for export of items such as frozen vegetables, crisps, and snacks, but the high internal price of the produce combined with other prohibiting factors mentioned above hinder future growth. The private sector has taken on new initiatives to establish potato crisp industries in the country.

The major constraints to growth in the sector are the following:

- Low productivity and subsistence farming.
- Unorganized farmers and huge numbers of small farm holdings.
- Lack of good quality seeds, planting materials, fertilizers, and other inputs.
- Lack of processing varieties of different crops suitable for further value addition.
- Low soil organic matter content and poor soil; imbalanced use of fertilizers by farmers.
- Traditional farming practices due to poor knowledge and skill of the farming community.
- Unsafe application of and high frequency use of pesticide due to lack of knowledge.
- Farmer's poor knowledge of proper harvesting and post-harvest handling techniques.
- Absence of field pack stations, standard assembling points, cold storage, and cool chain facility, proper packaging, and transportation facility.
- Weak supply chain and lack of market information system.
- Limited land or no land available for expansion of horticultural crop cultivation.
- Limited access to crop-based seasonal credit.
- Absence of good agricultural practices, poor phyto-sanitary service.
- Poor institutional support and lack of technical manpower.

Crops

Potato is the leading vegetable crop of Bangladesh with a production of around eight million metric tons in 2010, 52 percent higher than that of FY2008-2009, and 20 percent higher than the previous year. Increased potato production in FY 2009-2010 was due to increases in both acreage and yield. The high price of potato (Bangladesh Taka 25-40 per kilogram) prior to the planting season encouraged farmers to increase areas under potato cultivation. Farmers were also encouraged to grow potato because of the reduction in non-urea fertilizer prices and other facilities, such as diesel subsidies. Because of the bumper harvest, the price of potato dropped to around BDT 7-9 per kilogram whereas the production price was around BDT 8-10 per kilogram. In addition to decreases in profits, farmers did not have adequate cold storage facilities to preserve their potatoes. Despite adequate cold storage capacity, many are in poor condition and much of the available space is used for seeds or for home consumption potato, so many of the cold storage facilities were full beyond capacity. This was compounded when backup electricity was not used during power outages, resulting in huge losses for farmers.

Cold storage facility operators capitalized on the shortage and increased the price of storage per sack by over 18 percent, but the market price for potatoes decreased. This led the government to raise the cash incentive on potato exports from 10 to 20 percent, effective from April 2010. This incentive increase had a positive impact on exports, ultimately making the exports profitable and competitive.

This high cost of production and lack of adequate storage is a major problem, but one which can be addressed. Increased productivity per hectare can be achieved through better management, better quality first generation of seed, adopting optimal pest management techniques, and optimal use of inputs such as organic compost and balanced fertilizers. In addition, knowledge of proper soil moisture maintenance and efficient harvesting will further increase yields. Couple this knowledge and know-how with high-yielding, heat resistance varieties and the potential for growth is exponential.

Eggplant is an important cash crop for small holders that can be grown in both winter and summer. Consumer demand for eggplant is fairly high compared to other vegetables and farmers have been able to earn money due to stable market prices year round. One issue affecting eggplant is high pest infestation and high cost of inputs. This is an issue, as shown during the 2010 growing season when the area of eggplant production increased due to high prices the previous year, but the productivity per unit area did not change. In areas which have worked with PRICE in the past, productivity per unit has increased 30 percent over previous years, which has helped provide a steady supply to the market.

Mango productivity increased by more than 15 percent from 2009 to 2010 due to favorable climatic conditions and other improved management practices undertaken by farmers during the dry season and immediately after flower and fruit setting. This year, because of the increased productivity, mango was not imported in bulk from India during the growing season. Farmers still had trouble selling the late variety of mango, which is normal for Bangladesh. The area for

and production of mango is slowly increasing beyond the normal boundaries of the mango growing area, and small mango orchards with few numbers of plants that are cultivating short statured varieties are slowly expanding. Some well-off farmers are looking at cultivating rice fields into small orchards to improve their incomes.

B. Progress to Date

PRICE began working with potato in the winter of 2009 to help improve the production of table and seed potato. Since then, PRICE has trained 1,730 farmers on potato production, post-production, and storage. Supervisory and technical service support was provided to cooperative society members during the production season to help them deal with unfavorable situations such as infestation of late blight disease. PRICE helped them to source good quality, certified seeds. Combined, these efforts provided increased dividends for the farmers and the production of table potato went from 4.51 metric tons per hectare to 18.5 metric tons per hectare. This increase in production enabled the farmers to obtain cash quickly after the harvest and helped them to increase consumption. The two partners that PRICE worked with, GUK Enterprise Development, and Murail Rural Development Multipurpose Cooperative Society (MRDMCSL) produced more than 8,700 metric tons of seed and table potato, and created more than 320 new jobs.

PRICE is working with other organizations to address the constraints of association members and improve their technical knowledge in potato seed production, post-harvest handling, certification, storage, and marketing. Trainings on the production technology of tissue culture seed have already been conducted for 670 farmers.

Field interviews have confirmed that farmers are happy with the support they have received from PRICE and the majority of them have added potato into their everyday diet, reducing the amount of rice they consume. Farmers from the partner organizations consumed between seven and ten percent of their total production. The biggest complaint of farmers was that the price of potato was not as high as they had expected. Despite the lower prices, the assisted farmers plan to continue potato cultivation.

PRICE also worked to produce good quality potato seed through contract farmers, using 91 such farmers that covered 77 acres of land. To disseminate information and technology to the farmers, three seed potato demonstrations were established and a 15 day technical training was provided to 900 farmers and dealers. The contract farmers increased their family consumption of potato by 15 percent compared to the previous year.

Approximately 730 farmers from two organizations were trained on improving productivity, post-harvest handling, market linkages, and ensuring chemical-free mangoes for consumers. The trainings were followed by technical supervision and hands-on training focusing on cleaning, sorting, grading and marketing of mangoes. The carbide-free mango produced by these farmers were sold at seven outlets throughout Dhaka to the public. Carbide is used to ripen immature fruit and helps retailers earn more money as it makes the skin of the fruit more attractive, but the chemical is harmful to people. During each day of the mango season, approximately two metric

tons of carbide-free mango were sold through these outlets, resulting in total sales of BDT 7,560,000.

PRICE worked closely with ANKUR, a new enterprise, to market fresh mango that was sourced directly from the orchards of their mango farmers. This was a test case which provided lessons learned for future years, in particular in regards to post-harvest handling and marketing. Sixty of the mango farmers were trained on post-harvest handling. Their efforts resulted in over 90,000 metric tons of mango being sold at two local outlets.

About 680 eggplant farmers in Khulna from two organizations received a three-day training on safe vegetable production, post-harvest handling, and marketing. This training was later expanded through hands-on activities at the field level. These farmers increased their production by 15 percent, and the farmers now have access to better quality seeds and inputs. One of the organizations is providing crop-based seasonal loans to their farmers, and a partial contract farming system has been established by the enterprises with support from PRICE. Both of the enterprises are marketing eggplant from the contracted farmers in addition to other vegetables. A marketing channel was established between the enterprises and the local wholesale and retail stores to sell safe, chemical and pesticide-free vegetables produced by the farmers.

PRICE is focusing on eggplant, in particular the issue of pest infestation and the high frequency use of toxic insecticides. PRICE, in collaboration with local partners, is provided support to 780 eggplant farmers to minimize the use of pesticides, adopt integrated pest management practices, and increase productivity through other environmentally friendly measures. During the last winter 750 farmers were trained on production, post-harvest handling, and integrated pest management approaches. The technical interventions provided by PRICE along with timely application of balanced doses of fertilizer and irrigation helped the farmers increase their production of eggplant by 621 metric tons from the previous year. Similarly, sales increased to BDT 2,802,710 and 47 new full time jobs were created.

PRICE supported Padma Seed Company to establish a partial contract farming system involving 150 seed farmers. These farmers were trained on modern methods of seed production and received technical supervisory service during the production season. Padma and the farmers were able to create direct linkages to get good quality, certified seeds. Overall access to good quality seeds in the area near Padma Seed Company has improved because of these interventions.

The organic matter content of Bangladesh's soil is not adequate, less than one percent of what is required to sustain long-term cropping. Most of the soil is acidic which calls for proper soil health management. PRICE, together with its partners, is promoting the use of organic compost and fertilizer. Nearly 1,000 farmers as well as 100 Sub-Assistant Agriculture Officers of the Government Extension Department were trained on soil health and on the use, importance, and application of organic fertilizer and compost for different vegetables. PRICE facilitate 20 farmer's yard meetings where were attended by 800 farmers and input dealers. These meetings stressed the importance of soil health and the benefits of using organic fertilizers. Forty results demonstrations were established to show the effect of organic compost and fertilizer on eggplant,

potato, pointed gourd, and tomato. Experience sharing of farmers, public representatives, agriculture officers, dealers, and retailers was conducted through eight field days. Those in attendance shared their experiences and successes with organic compost and fertilizer on crop yield and soil health. As a result of PRICE initiatives, one partner, GKSS Enterprise of Bogra had a 700 percent increase in the sale of organic fertilizer over the previous year, selling a total of 342 metric tons.

C. Strategic Focus

PRICE will continue its work to strengthen the horticulture value chain, focusing on the same three crops, potato, eggplant, and mango. Strengthening these value chains will have a positive impact on the livelihoods of many poor farmers. Through its interventions, PRICE will continue to provide technical support to farmers involved in the production of these three crops through associations, enterprises, and companies. The main thrust of its interventions will be increase production of high quality, safe produce following good agricultural practices. By doing so, not only will sales and income increase, but job and food security for families will also be improved.

Along with deciding to continue working with the same crops, considerations for geographical advantages and opportunities for future growth of these crops delineated PRICE's focus to the west and southwest part of the country.

In addition to PRICE's efforts on crops, several cross-cutting issues which have a profound effect on sustainable future growth of the horticulture sector will be focused upon. Access to good quality seeds and planting materials, replenishment of soil organic matter content for sustainable production through increased use of organic compost and balanced fertilizer, adoption of safe production and post-production processes, following good agricultural practices, access to finance, and market linkages will all be addressed across the horticulture sector through PRICE interventions. PRICE will also support the evolution of new business enterprises linked with captive financing and will encourage the development of informal groups into formal associations and companies. By doing so, PRICE will reach thousands of farmers are key players in the horticulture sector. While increase sales, jobs, and investments are target areas of PRICE activities, focus remains on food security at the family level of farmers.

D. Interventions

Potato

Promote potato seed production, certification, storage, and marketing to meet growing demand. Currently, the annual replacement of potato seed is around six percent, while the remaining 94 percent of the seeds used by farmers come from the previous year's left over table potato. These left over seeds are less productive and more prone to disease. As a result of using these seeds, disease outbreak can greatly reduce total annual production. During the last season, potato production was around 10 million metric tons, the highest quantity of potato produced in Bangladesh in a single season to date. PRICE will continue to support two existing and eight

new quality seed producing enterprises to increase availability and access to disease-free quality potato seed.

Technical assistance to produce foundation and certified seeds will be provided to two seed producers' associations reaching approximately 1,000 seed producing farmers. Four potato tissue culture laboratories will receive technical assistance to strengthen their capacity to produce plantlets, tuberlets, breeders, and foundation seeds.

One of the constraints to quality seed potato production is a dearth of skilled manpower from lab technicians to field level workers. PRICE is assisting enterprises and associations to train manpower at all levels so that a critical mass of human resources is available to promote quality seed production.

A linkage between seed producers and agencies with biotechnology labs that are engaged in producing in-vitro disease-free plantlets, pre-breeder, breeder, and foundation seeds will be established to ensure quality potato seed production. PRICE will continue to work with the Potato Seed Growers' Association and the Rural Development Academy to bring all the stakeholders involved in seed production under a unified umbrella so that a standard for potato seed can be adopted and adhered to.

Certification is crucial for proper quality assurance, but such certification does not currently exist in Bangladesh's potato sector. PRICE will facilitate a certification process for the seed growers so that the seeds produced and marketed by enterprises contain proper logo and show that they are certified by the Seed Certification Agency. Parallel to certification activities, PRICE will work with tissue culture laboratories in a coordinated effort to create standard processes and protocols in regards to plantlet production and quality control, and more specifically, for testing for potato seed viruses. To build stakeholder consensus on a national level, PRICE will organize a nation workshop.

Once produced, seeds need to be kept for eight to nine months in cold storage at a proper temperature and humidity level. In doing so, the viability of the seed is retained and no diseases are spread. Despite this need for cold storage, no cold storage for seeds is available in Bangladesh, so seed quality during storage is not maintained. PRICE will work with its partners to keep their seeds in better cold storage and in proper containers in dedicated areas and work to encourage the building of dedicated seed storage spaces.

PRICE will also work with new enterprises and farmers' associations to establish marketing linkages to enable them to get access to good quality seeds more easily.

Facilitate access to inputs, finance, and market to the farmers through establishment of potato contract farming. Contract farming systems are not well-rooted in Bangladesh. Many enterprises and industries are not aware of the advantages of the system and do not know the ways in which such a system benefits economic growth as well the enterprises and industries as much as it benefits the farmers. PRICE has taken initiative to introduce the contract farming system to three

enterprises, reaching 2,000 farmers. Elements introduced during the last program year, such as credit, supply of seeds, and partial buying of produce will be strengthened and expanded upon during this year. PRICE will work with both sides of the contract farming system to better their understanding. Through these initiatives, PRICE will reach 1,200 seed potato contract farmers, three enterprises, 2,500 table potato farmers, and four entrepreneurs. PRICE may undertake some exposure visits to neighboring countries where a similar system is effectively working.

Increase potato productivity. During the last growing season, the average productivity per hectare for PRICE farmers increased from 6 metric tons to 18 metric tons – a 300 percent increase. Increased yields were a result of providing skill and knowledge based training to farmers in the areas of proper management practices, use of required inputs, favorable weather, and continued technical advice during the growing season. These interventions will be continued during this year to support farmers of new enterprises and to provide refresher information to previously trained farmers.

PRICE will establish linkages between potato growers and organic fertilizer manufacturing companies to increase access to inputs and provide technical support on the use and application of fertilizers and other nutrients. Soil samples of the assisted farmers will be collected and tested to determine the soil nutrient levels. Based on those findings, farmers will learn about proper and balanced use of fertilizer, and will receive a soil health card for their fields which will help with fertility levels and proper corrective actions.

Successful potato cultivation depends on good disease and pest management. Selection of the appropriate type of chemicals, proper dosages, and intervals of applications based upon the season environment are seldom understood by farmers. Hands-on training and technical advice during production and demonstrations helps farmers to follow and adopt appropriate measures in disease management. PRICE will support such interventions.

Support in post-harvest handling, storage, and access to market. Harvesting and post-harvest handling is critical to maintain proper quality of table and industrial potato during storage, proper accumulation of dry matter, and after use. For export and industrial use, certain parameters must be met, such as uniform size, storage period, and total shelf life. Many farmers are not aware of these parameters and do not have skills in harvesting and post-harvest handling techniques. As a result, many farmers harvest early when potatoes are not mature or they do not adopt proper harvesting techniques resulting in rapid deterioration of quality. PRICE will facilitate linkages between producers of good quality potatoes and exporters.

Early harvesting reduces dry matter content and results in potatoes that are not the correct size, making it difficult to have them for processing. PRICE will work with farmers to get them to follow proper harvesting and post-harvest techniques so their products meet the quality standards for local and export industry. PRICE will also facilitate linkages between the producers of industrial potato and the processing industry.

Building Capacity. Capacity building at all levels is important for sustainability in the potato sector. While gathering information for this work plan, it became apparent that the management capacity of the associations and newly formed business enterprises is poor. Both technical, managerial, and support staff need training to execute their responsibilities. Field level workers are generally hired on a casual basis and are expected to conduct a myriad of jobs, making qualified work force scarce during times of need, such as during spraying, sowing, harvesting, and post-harvest handling. PRICE will focus on increasing the capacity of the workforce at the field level as well as the enterprise level to help the sector grow.

Eggplant

Promote access to high-yielding, resistant eggplant varieties. Eggplant is one of the most popular vegetables, second only to potato in production, and has a high commercial value for farmers. However, the yield of many local varieties is low and the incidence of pest infestation is high. High frequency of toxic pesticide application is normal for eggplant producers, even though it results in environmental degradation, is a health hazard, and is costly. PRICE will establish linkages between institutes and projects that have eggplant varieties that are high-yield, disease resistant, and are suitable for a variety of locations. Support will be provided to test the performance of these varieties in strict isolation through training and technical assistance.

Facilitate increased productivity by adopting IPM practices and associated techniques. PRICE will train farmers to raise grafted eggplant, which will help keep the plants safe from bacterial wilt. Promotion of tricho-compost and tricho-extract in the seed bed and crop field will be undertaken to minimize disease infection at the seedling stage. Necessary linkages with these production companies and the eggplant farmers will be established in order to introduce the fungal based compost and extract.

PRICE will also build farmers' awareness and adoption of clean production management, encourage growth of natural predators by limiting the use of toxic pesticides in favor of bio-pesticides, and promote integrated pest management practices. This will be done through demonstrations and a farmer's field school. Support will be extended to farmers on the rational use of compost and fertilizer on the basis of soil nutrient analysis and the introduction of the soil health card.

Establish linkages with quality inputs and access to the right information. Eggplant farmers often struggle with a lack of access to quality inputs, in particular to seeds and pesticides. Many of these farmers do not use the correct kind of input in the correct quantity because they lack this basic information. Overuse of fertilizer has become a growing concern throughout the value chain. PRICE will facilitate linkages to better input suppliers, and train farmers and input dealers and retailers on the correct dosages of fertilizer for successful eggplant cultivation.

Mango

Support increased productivity of fresh mango through introduction of scientific orchard management practices. In 2010 PRICE began supporting 250 mango farmers by organizing a mango farmers' association in Kansat. The purpose of this association was to increase the productivity of mango through training and field-based technical guidance, which could be expanded to reach a larger number of mango farmers. Last year's mango crops suffered from changes in rainfall patterns and increase heat, and it is expected that these problems may exist in the coming year as well. PRICE will work with farmers to mitigate problems based upon the expected forecast, provide hands-on trainings, and organize demonstrations on the introduction of modern orchard management practices. It is expected that these interventions will reach 1,000 mango farmers.

Promote mango contract farming involving small holders. In the southwest of Bangladesh, new small mango orchards have emerged during the past several years. These orchards produce mainly short- to medium-statured varieties, which are good in taste and quality. However, these farmers need assistance in modern cultivation techniques and other management measures. PRICE will support one enterprise to develop a contract farming system that involves new orchards covering small holder's mango farmers to ensure they receive access to technology, credit, and the market.

Facilitate nurseries to ensure farmers get access to elite planting materials of commercial varieties and embedded technical services for new garden establishment. As a perennial crop, quality planting material for mango is critical when establishing new orchards. Many nurseries do not have the right kind of mother plants and/or trained personnel to identify the right kind of rootstocks, scions, and the right process to follow. PRICE will provide training to the nurseries through the nursery association on how to produce the right type of planting materials required for new orchards. The nurseries will also provide embedded services to the farmers when establishing new orchards. PRICE will work closely with farmers to build their awareness of the right kind of planting materials, how to establish a new orchard through proper layout design, and other associated elements.

Promote production and marketing of safe mango. Widespread use of pesticides in high frequencies is making mango production expensive while simultaneously creating health hazards. PRICE will work with the associations and enterprises to create awareness of and train farmers on the use of pesticides. The end goal is to minimize pest control while harvesting safe products. Use of a harmful chemical, carbide, as a ripening agent exposes the public to serious health problems, and an integrated approach is required to curb its use. PRICE will work to build awareness of the negative effects of carbide, targeting traders and retailers through workshops and meetings. PRICE will also support partner associations and enterprises in opening and operating market outlets in Dhaka and other important outlets that sell carbide-free mango to the public. PRICE will explore the possibility of establishing and running a ripening chamber on a commercial basis.

Improve harvesting and post-harvest handling of mango. PRICE will support mango farmers to improve their harvesting techniques and help them to adopt simple and inexpensive methods of post-harvest handling at the farm level. These interventions will help improve the overall quality of their mango so that the farmers may get a better price for their products.

Assist with institutional capacity building. Associations and new enterprises often face difficulties in proper planning, managing, and implementing commercial activities involving horticultural commodities. PRICE will extend need-based support to new associations and enterprises to increase the institutional capacity of the organizations as well as of the farmers involved in the process.

Cross-cutting Issues

Promote horticultural seeds. One of the major constraints to increasing productivity in the horticulture sector is poor quality of seeds used by farmers. In general, contributions from farmers to obtain better quality seeds have a greater return than the original contribution in the form of greater yields and increased food security. Recently a handful of companies have started to work on both research and development to improve existing varieties with better traits. PRICE will work with these seed companies and enterprises to improve production, processing, and access to good quality seeds for horticultural crops – in particular vegetables and spices.

Encourage production and use of organic fertilizer. Use of imbalanced fertilizers and overuse of certain types of chemicals is creating problems for the soil and environment. It also contributes to low product quality and unsustainable farming. The acute shortage of cow dung and other organic biomass at the farm level, coupled with intensive vegetable farming by small holders has only compounded the situation. One of the most simple and doable solutions is to increase the use of organic fertilizers with certain attributes, supplemented by small quantities of balanced fertilizers. This solution will help farmers to reduce the cost of cultivation, continue profitable farming, and minimize pest pressure. PRICE will continue to support increased efficiency in the production of organic fertilizer and will promote its use and application, along with balanced doses of fertilizer, by the horticultural farmers.

Promote access to the international market for Bangladeshi products. Bangladeshi foods have great appeal to the ethnic people of the country who are living abroad. However, similar foods and products are being produced by other neighboring countries. In the Gulf region, millions of Bangladeshi people work and live who are the ideal market for Bangladeshi food and products. PRICE will work with partners to showcase local products at the Gulf Food Fair and other exhibitions, so that they can establish linkages for exports.

Support access to finance. Access to finance is fundamental for all to run their business, and is particularly crucial for farmers who need timely funds to buy inputs and employ labor for field based work. Many of PRICE's partners are not aware of the products or services offered by banks or financial institutions. PRICE will organize access to finance workshops and meetings

between the banks, financial institutions, and clients to develop linkages between lending institutions and partners.

Introduction of good agricultural practices, traceability, and field pack station. PRICE will support farmers so they may undertake good agricultural practices, and will help enterprises to adopt traceability. In addition, PRICE will establish field pack stations on a pilot basis to help increase the quality of the products that are going from the farms to the market.

Support improvement of existing market information system: PRICE will assist EFADF Agro Enterprise in establishing two farmers' information centers in Khulna for dissemination of market information so that its contract farmers are able to get daily market information through mobile phone from the wholesalers and settle selling price with EFADF Agro Enterprise. The information centers will also be used as source of technical information for the farmers, where technical bulletins and manuals will be made available and local extension agents of DAE will visit regularly to solve farmers problems.

Assist in building organizational and skilled workers' capacity: Capacity building at all level is extremely important for sustainability. While working and discussing with the partners it was clearly revealed that management capacity of the associations and newly evolved business enterprises is extremely poor. The technical, managerial and support staff need considerable training so that they can efficiently handle their assigned responsibility. Workers at the field level are usually hired casually and do many different kinds of jobs. As a result, it is often difficult to find qualified workers to perform some specific operations during spraying, sowing, harvesting, and post harvest handling. PRICE will work at increasing the capacity of the workforce at the field level as well as the enterprise level to help the sector grow.

GANTT Chart for Horticulture Activities 2010-2011

No.	Description of activities	Partners/ Responsibility					
1.	Potato	Q1	Q2	Q3	Q4	Q5	
	1.1. Facilitate production and increased supply of quality seeds for table and industrial potato in the country.						
	a. Assist in providing technical support in operation and establishment of tissue culture labs for production of disease free in-vitro potato plantlets.						RDA, TFRD, Communiqué, Seed Potato Association, F Bio Tech and others.
	b. Assist in capacity building of 20 laboratory technicians engaged in plantlet production in different Tissue Culture laboratory.						RDA and other partners.
	c. Support training to the field technicians, work force and contract farmers in production of tuber lets and breeder's seeds growing organizations and storage.						Konica, Seed potato association, RDA, TFRD, Murail, Guked, F. Bio-tech, Dynamics, and others.
	d. Facilitate training of workforce and contract farmers for production of high quality disease free foundation seeds of 8 enterprises / companies from tuber lets.						Konica seeds, GUKED, MRDMCSL, TFRD, Dynamic Agro, TFRD, Unique seed and others.
	e. Provide field level technical support in production of disease free certified seeds.						All potato seed growing partners.
	f. Work in collaboration with Seed Certification Agency for proper certification of the potato seeds produced by the partner organization.						With all seed potato partners and Seed certification agency
	1.2. Facilitate access to better storage for potato seeds by linking with standard cold storages suitable for seed storage.						All seed potato farmers, enterprises.

1.3. Assist in marketing of potato seeds of different partner enterprises and support in branding their products.							Konica, Seed potato association TFRD, MRDMCSL, GUKED, F. biotech, Dynamics, and others.
1.4. Promote contract farming system for seed and table potato farmers in order to ensure inputs, credit and market.							
	a. Provide technical support to sponsor entrepreneurs in designing and gradual adoption of all elements of contract farming system.						All sponsor partners.
	b. Assist sponsor enterprises to train relevant staffs and farmers on improved farming practice, responsibilities and obligations under contract farming system.						MRDMCSL, GUKED, Konica, PRIDE, UNIQUE, and others.
	c. Support to 3 partners to reach 1200 seed potato contract farmers and assist 4 partners to establish contract farming by inclusion of 2500 farmers and provide technical assistance.						Konica, PRIDE, GUKED, MRDMCSL, Dynamic and UNIQUE
	d. Support exposure visit to India / other country for sponsor entrepreneurs and farmers to get understanding of successful contract farming ventures.						Sponsors entrepreneurs and farmers.
1.5. Promoting sustainable environment friendly modern potato production technology							
	a. Facilitate in quality improvement of potato through hands on training on production management, post harvest handling to the 2000 farmers and work force.						MRDMCSL, USS, UNIQUE, MUKTIR ALO, PRIDE and other association.
	b. Extend farm level technical support for crop and disease management.						USS, UNIQUE, MUKTIR ALO, PRIDE, MRDMCSL
	c. Support in providing training to the farmers and demonstrate on use and application of proper doses of fertilizer based on soil nutrient level and provide technical assistance.						Associations and others. Association, contract farmers, outgrowing companies.

	d. Promote use of organic fertilizer in potato fields through technical assistance.						All potato growing farmers of partner organization
	e. Assist in establishing linkage with organic fertilizer manufacturers, farmers, associations and enterprises.						Organic compost and fertilizer companies and potato farmers.
	f. Facilitate in collection soil sample and test through SRDI laboratories and introduction of soil health card.						Soil resources Development Institute Farmers, Outgrowing companies.
1.6. Facilitate increased supply of processing types of potato							
	Assist association and enterprises to initiate organized production of processing variety of potato(Lady Rosetta, courage, asterix and others)						GUKED, and other partners
	Support processing potato growing enterprise and associations in establishing linkage with quality input supplier and finance.						Input supplier, Bank and potato farmers association
	Support to establish backward linkage with the industrial potato producing enterprise / association to ensure smooth supply of raw materials as per requirement..						GH and other processors , Murail, GUKED etc.
1.7. Promote standard post harvest practices and value addition activities							
	Support to organize hands on training for farmers, work force on harvesting technique (haulm pulling, Curing etc) , post harvest handling .						Association and enterprise farmers
	Facilitate access to better storage of potato by linking with cold storages.						Producing enterprises and processing companies. Murail, Unique , GUKED, Dynamic
	Assist to improve capabilities of cold storages through management training and technical assistance in refrigeration for better storage of potato(table, processing and seed)						Cold storage s

1.8. Support establishment of marketing linkage with processing industries and exporters.							Golden Harvest, BFVEA Exporters, Processors
2.Egg plant							
2.1. Promote access to high yielding variety (both local and introduced) and FSB resistance variety of egg plant seeds to the farmers.							BARI , ABSPII , Seed company , farmers associations
	a. Assist in establishing linkage with BARI, ABSP II, project, with PRICE supported farmers for advance trial of FSB resistance transgenic varieties of egg plant.						AAS. VAKUBS, Muktir Alo, USS and others.
	b. Support 200 egg plant seed producers with technical assistance for producing high yielding locally adapted seeds of egg plant.						Seed producers , Padma seeds, Lalteer and others
	c. Facilitate in establishing demo plots on high yielding varieties.						Seed producers.
2.2. Facilitate in improving seedling raising technology (grafting) and increase access to the resistant planting material.							BARI, VAKUBS, AAS, USS PRIDE , MUKTIR ALO, EFADF , Organix, IPM CRSP
	a. Support training to 300 farmers and seedling raisers on grafting techniques , sourcing wild egg plant seeds for raising seedlings etc.						Selected farmers of Muktir Alo, USS, PRIDE, Organix, EFAFF, AAS, Vakubs, GUKED, BARI-IPM CRSP , and EFADF.
	b. Establish demonstrations and field school of grafted egg plants with associated technologies.						Farmers associations.
2.3. Facilitate in improving knowledge and skill of the egg plant farmers on modern production techniques.							
	a. Assist in organizing training for 1000 the egg plant farmers on production technology.						USS, PRIDE, Organix, EFAFF, AAS, Vakubs, GUKED, EFADF and others

	b. Support through hands on technical training in the field during production period.						
	c. Promote access to organic and inorganic good quality balanced fertilizer, encourage use for sustainable production of good quality egg plants.						GKSSE, Ryia and other partners, EFADF, USS, PRIDE, Muktir Alo and others.
2.4. Assist egg plant farmers on pest identification and adopt rational control measure.							
	a. Facilitate in organized egg plant farming with IPM control approach.						Egg plant farmers of all partners associations and enterprises
	b. Assist in establishment of demonstration with integrated pest management approaches in egg plant fields.						do
	c. Support in organizing IPM field school with egg plant farmers.						do
	d. Assist farmers to adopt alternative biological control measure through training and demonstrations.						do
	e. Facilitate linkage with farmers and bio-control agents supplier targeting safe egg plant production.						EFADF,MUTIRALO, USS, PRIDE< Farmers Association, BARI, Ispahani ,
2.5. Promoting a market for safe egg plant							Mutir Alo, EFADF, ORGANIX, PRIDE, Vakubs,
	a. Assist in establishing linkage with producers of safe vegetables with exporters, local wholesaler and super shops.						Egg plant farmers associations, enterprises, Exporters
	b. Support awareness development campaign on consumption of safe egg plant among the egg plant consumers.						Organix. AAS, Supershops, consumers
3.Mango							

3.1. Assist association and enterprises to introduce improved farming technique and better crop management among its member farmers to enhance farmers capacity						
	a. Facilitate improving knowledge and skills of farmers in orchard management, production technology, and adoption of proper crop protection measures through organizing training.					Aknur, Uttaran, Banalata , DAFF Kansat Mango association and other farmers
	c. Support in providing technical support to farmers during production period.					Aknur, Uttaran, Banalata , DAFF,Kansat Cooperative , Farmers association
3.2. Promote contract farming for mango production.						Uttaran, Ankur and others
	a. Assist new enterprises in designing a suitable model for organizing contract farming through technical support.					
	b. Help farmers in understanding the contract farming through yard meeting and short term training on contract farming approach.					Uttaran, Ankur and others
	c. Facilitate in establishing linkage between quality input suppliers, banks and other service providers .					All association and enterprises
	d. Assist in establishing an efficient input supply chain between farmers and contractors.					Ankur and others
3.3. Facilitate proper management of old orchard and replacement of old and expansion of new garden.						
	a. Assists in providing hands on training on orchard establishment and existing tree management.					Farmers associations, service provider
	b. Assist in production of elite planting material form mother orchard through technical skill training to the nurserymen					Consultant, Mango research, Association.

	c. Create awareness among the farmers to use right type of planting material.						
3.4.	Create awareness and support in adopting appropriate pest control measure in time and rationalize use of approved pesticides for producing quality fruits cost effectively.						Farmers, Consultant, Mango research, Association.
	a. Facilitate practical training for farmers, work force and seasonal lessee on pest identification, appropriate pesticides and proper application method and interval.						Farmers, workforce, associations
3.5.	Facilitate in adopting proper pre and post harvest handling, use of proper packaging and containers by the mango farmers and traders.						Farmers, enterprises, associations and middlemen, Aratdars.
	a. Support training on harvesting index, harvesting and farm level post harvest handling						
	b. Facilitate demonstration on hot water treatment by using hot water treatment plant or alternative approaches for better ripening and longer shelf life.						
	c. Support in organizing method demonstration of proper cleaning, drying, grading and packing practices.						
3.6.	Promote a market for carbide and other harmful chemical free mango						Farmers association, Aratdars.
	a. Assist in market network development and promotion of good quality carbide free mango through opening outlets at important cities and organizing mango fairs.						Ankur, Uttaran, Kansat, Banalata, DAFF and others.
	b. Support associations, enterprise members for exposure visit to India / Thailand/ Philippines to learn about organized mango production, post harvest management and marketing operation.						Association members, enterprise and lead farmers.

4.Cross cutting issues :							
4.1. Promoting production and marketing of quality organic fertilizer.							
	a. Assist 4 bio-fertilizer manufacturing companies in improving their technical efficiency in producing good quality bio-fertilizer.						GKSSE, Ryia, Northern, Annarpurna and other partners, service provider
	b. Promoting a market for compost fertilizer for horticultural producers.						GKSSE, Ryia. Northern, Annapurna and other partners, consultant
	c. Support farmers, associations, enterprises to establish linkage with quality bio-fertilizer suppliers;						Association, Cooperative
	d. Facilitate in organizing training for farmers, dealers and retailers on importance of environment friendly good quality bio-fertilizer, effect on yield and profitability.						GKSSE, Ryia and other partners
	e. Assist in establishment of demonstration with organic fertilizer to promote the use and application of bio-fertilizers.						GKSSE, Ryia and other partners
	f. Assist in introduction of soil nutrition information , fertilizer use data and pesticide use cards among farmers						EFADF and other partners.
4.2. Facilitate in production of good quality high yielding variety of vegetable seeds.							
	a. Assist in providing technical training to seed growing farmers through seed producing enterprises.						Lalteer. Metal agro, Syngenta, Dynamic, Padma seeds and others.
	b. Facilitate in ensuring seed quality during production, post production and processing through technical support.						Lalteer. Metal agro, Syngenta, Dynamic, Padma seeds and others.
	c. Support in strengthening and establishment and establishing a strong marketing network for better access to good quality seed						Lalteer. Metal agro, Syngenta, Dynamic, Padma seeds and

	to the farmers.						others.
	d. Assist in dealers training, yard meeting, establishment of demonstrations, field days.						Seed companies.
4.3. Facilitate in establishing field pack station for proper post harvest handling of vegetables.							EFADF
	a. Assist one enterprise in designing and operating field pack station for minimizing post harvest loss and maintenance of quality.						EFADF
	b. Support for developing a cool chain for to minimize post harvest losses and promoting frozen food.						TA to Golden Harvest
4.4. Linking horticulture producers and processors to internationals market.							
	a. Promote Bangladeshi products – processed and fresh through participation of fairs, exhibition and other technical support.						GULFOOD exhibition, Dubai Food and drink Expo UK and others – Golden Harvest, Hashem Food and others.
	b. Facilitate in developing new processed product as per international standard by providing Technical support						Intl. consultant on prpduct development and Golden harvest.
4.5. Promotion of safe horticultural produces in the field and factory							
	a. Assist in organizing campaign for consumption of safe horticultural produces.						EFADF, ORGANIX.
	b. Facilitate a campaign on safe use of chemicals and other inputs in collaboration with input selling companies, superstore, exporters and NGO's.						Syngenta,Ryia,GKSSE, ,Exporters , NGO's

	c. Facilitate farmers' training to promote good Agri. Practices , rational pest management by using approved pesticides and bio-pesticides,						EFDAF, ORGANIX, AAS , VAKUBS , PRIDE, USS and service providers
	d. Assist enterprises in establishing traceability of safe vegetables through proper recording system at every stage.						ORGANIX
	e. Train work force, supplying vendors and horticultural processors on food quality, safety and compliance.						Golden Harvest Agro , consultant
4.6. Support improvement of existing market information system.							
	a. Assist in establishing 2 farmers information centre for dissemination of market information and technology.						EFADF
4.7. Facilitate increased access to finance.							
	a. Organize workshop with the participation with partner enterprises and financial institutions.						Enterprises, companies.
	b. Increase the existing number of out grower's schemes from 3 to 10 in order to increase the provision for value chain financing.						Out grower enterprise
	c. Engage with the micro- finance organization to develop horticulture sector specific loan product.						GUK,GKSS,PATHIKRIT, UTTARAN, ANKUR and other NGO's
4.8. Support in strengthening organizational capacity of partner Association, new enterprises							
	a. Facilitate training on organizational management and obligation to the management staffs and executive body members						All associations, enterprises management staffs

	b. Support training to the association members on responsibility, rights and organizational system						Association members
	c. Facilitate training for the support and managerial and technical staffs on maintaining books of accounts, data collection and maintenance, marketing information,etc.						Do

AQUACULTURE

Bangladesh is the third largest freshwater fish producer in the world, behind China and India. The majority of the freshwater fish come from aquaculture, open water, natural depressions, and seasonal flood plains and is consumed locally. Farmed fish and brackish water prawn and shrimp are mainly exported. Bangladesh has nearly five million hectares of fresh and brackish water ponds, lakes, rivers, creeks, canals, boro-pits, natural depressions, ox-bow lakes, estuaries, and seasonal flood plains, of which closed water bodies constitute just over half a million hectares (Bangladesh Department of Fisheries, 2010).

The huge fresh, brackish, and salt water resources of the country are habitat to many aquatic animals, including 251 species of freshwater fish, 402 species of marine and brackish water fish, 16 species of prawn, 39 species of shrimp, and multiple species of lobster, crabs, and bivalves (Encyclopedia Flora and Fauna of Bangladesh, Vol. 17, 18, 23, and 24). However, only a few of those species are domesticated for commercial farming, including 18 species of freshwater fish, one of fresh water prawn, one of brackish water shrimp, and 12 fresh water exotics.

Aquaculture activities are generally divided into two sub-sectors; fish and shrimp. These sub-sectors are further divided based upon salinity – freshwater (FW), brackish water (BW), and salt water (SW). FW focuses on 30 species of fish, including 12 exotics and one variety of prawn, known as *golda*. BW farming focuses on black tiger shrimp, known as *bagda*, and three mullet species. Open water fisheries and fish farming combined provide more than 60 percent of the animal protein consumed in the country, generate more than USD \$470 million in exports and USD \$3.6 billion in domestic sales, and employ more than 11 million people in rural and coastal areas.

Currently, fish farming in Bangladesh is for local consumption and only a small fraction of what is produced is exported. Approximately 23 thousand tons of fish are exported to ethnic markets, less than one percent of the total 2.7 million tons produced from farming and wild sources. In contrast, the shrimp and prawn industry focuses on exports to large markets such as the United States and the European Union. Shrimp and prawn are first block frozen and then exported, with little value added to the product (such as making it ready to cook).

Because shrimp and fish are different types of animals, and because they differ significantly in terms of farming, end markets, supply and value chain actors, and constraints and potential, PRICE has divided the aquaculture sector into two sub-sectors: fish and shrimp.

I. FISH SUBSECTOR

A. Overview and Constraints to Growth

There are multiple reasons for PRICE to be working in the fish sub-sector. These include: strong domestic markets; potential for high sales generation, jobs, and investment; prospects for unemployed youth; participation of females and housewives; holistic family approaches; family nutrition; farming integration; food security; and, probable capability to cope with climate change. Fish aquaculture employs over 4 million people and produces almost 1.1

million metric tons valued at USD \$1.5 billion, near 4.5 times that of shrimp sales. However, less than USD \$100 million of that represents exports, and most exports are to ethnic markets.

Aquaculture and fisheries in Bangladesh play an important role in combating malnutrition by supplying necessary animal protein, unsaturated lipids, fat soluble vitamins, minerals, and micro-nutrients. At present, per capita fish consumption stands at about 18.01 kg/year (DOF, 2010), which is an increase of 780 grams from the previous year. This consumption rate could easily double to meet the nutritional needs of the population, which depends heavily on fish protein.

In order to increase the supply of fish through aquaculture for Bangladesh's growing population, and in particular the urban population, emphasis needs to be placed on cost-effective production of low-priced, high-yield varieties of fish. This should occur in areas where input supply is easily available, farming methods are established, and the skills of farmers are developed.

During the 2008-2009 year, annual fish yield per hectare in Bangladesh's ponds was 2.8 metric tons, with a potential to increase to seven to eight metric tons (DOF, 2010). Some PRICE partners are currently producing as much as 80 tons per hectare annually through perennial farming with fast growing species. This success showcases Bangladesh's potential and opportunities to increase fish production and the associated vertical yields.

The key constraints to growth in the fish sub-sector are:

- Widespread use of genetically degenerated fish seed (because of inbreeding), which leads to low farm yields.
- Farmers' inadequate access to quality seeds, which leads to sub-optimal productivity.
- Insufficient knowledge of farming, which results in low yields.
- Lack of farming integration under diverse hydro-ecological conditions for varied crops, which leads to sub-optimal farm yield year round.
- Poor perceptions of unconventional/alternative aquaculture, which results in lost opportunities to produce and market high value fish species by using unutilized and underutilized resources.
- Inadequate access to markets.
- Weak associations and poor member services which threaten sustainability of them.
- Knowledge gaps on hygienic dry fish production and marketing, which leads to wide scale prevalence of poor quality, unhygienic, and unadulterated dry fish in the market.
- Few value added products lead to insignificant quantities of exports.
- Inadequate access to finance and institutional credit.

B. Progress to Date

Since its inception, PRICE has provided technical assistance through trainings, counseling, consultancies, linkages, exposure tours, demonstrations, and workshops to a total of 18 fish-based partners. The geographical focus of this assistance has been the greater Mymensingh, Bogra, and the greater Jessore-Khulna belt. While the bulk of PRICE's partners have been farming associations, PRICE has also worked with a fish seed traders' association, an input

sellers' company, feed companies, and has provided technical assistance to a processing plant that exclusively processes and exports fish and horticultural products.

PRICE has worked with farming associations to increase farm productivity, provide access to better inputs and cost effective procurement of inputs through group marketing schemes, develop marketing linkages, and create opportunity for access to finance. To improve the quality of seeds, PRICE worked with the fish seed traders' association to procure higher quality seeds, responsibly transport aquaculture seeds, and to provide embedded services to farmers. PRICE has worked to increase the capacity of marketing staff for input sellers, and worked with them to create demonstration farms. With feed mills PRICE has improved feed formulation, created linkages to better inputs, provided training to the marketing staff to increase their capacity to provide embedded services and expand sales by growing their marketing networks. Workforce development in the areas of biosecurity, personal hygiene, and HACCP regulations was provided to the fish processor. In addition, PRICE worked to build the capacity of the laboratory staff on basic biological and chemical laboratory procedures, analytical methods, and biosecurity.

During the second half of 2010 PRICE established partnerships with an additional 15 fish farming associations and worked with them to begin to increase their productivity. As well, PRICE partnered with nine general and mono-sex tilapia hatcheries. Technical assistance to these hatcheries included capacity building of hatchery personnel on farming, brood farming, management, and biosecurity measures. Each hatchery was encouraged to partner with farmers groups so the farmers' using seeds from a particular hatchery could use their farm as a demonstration farm as well as provide specific feedback on those seeds. These hatcheries also provided soft credit and technical assistance to their partner fish farmers.

PRICE also partnered with two additional processing plants that process and export both fish, and shrimp and prawn. Together they have initiated training programs on workforce development, biosecurity measures, HACCP, SOP, and SSOP regulations, and management training. Training on hygienic dry fish production, packaging, and marketing was provided to a

fish dryers' association that collectively manufactures approximately 30 percent of the dry fish consumed in Bangladesh.

At the close of FY2010, PRICE has provided technical assistance to approximately 14,500 fish farmers, input sellers, and fish seed traders. Over half of those farmers (about 8,644) received both improved farming and management trainings. Training for improved farming includes site selection, pond preparation, stocking, farm management, feed, water, soil, health management, good aquaculture practices (GAP), and judicious use of inputs such as fertilizer, lime, antibiotics, probiotics, micro-nutrients, medicine, and water. In the management trainings participants learn about group procurement of inputs and group marketing. PRICE worked with several farmers' associations to strengthen their organizational capacity, establish links with quality grade seed producing agencies, hatcheries, nurseries, and fish seed traders, processors, and suppliers. More management trainings are planned for farmers that have not yet received this.

To address inadequate access to finance, PRICE assisted organized farmers by establishing links with micro-credit and micro-finances sources. To date, a total of 1,819 micro- and small farmers have received micro-credit ranging from BDT 3,000 to BDT 25,000 with the association or group acting as the guarantor.

C. Strategic Focus

The fish sub-sector, and in particular fresh water fish, is vast and nearly covers the entire country. PRICE plans to continue its focus on the priority regions, Mymensingh, Khulna/Jessore, Bogra, and Cox's Bazar, and maintain its focus on three high-potential groups of fish. These are carp, tilapi, and Mekong River catfish. Where PRICE's partners currently deal with commercial farming of climbing perch and stinging catfish, PRICE will work with those.

To achieve improved productivity and good aquaculture practices for an appreciable mass of fish farmers, PRICE will continue to work through organized farming groups and community farmers, planning to reach more than 10,000 fish farmers by the end of December 2010. Throughout the life of the project, PRICE will reach 30,000 – 35,000 farmers.

To increase farm production, improve farming management, and expand access to quality grade inputs such as inbreed-free and healthy seeds and quality grade seed with good feed conversion rates (FCR), PRICE will work with technical consultants who will provide customized services to farming associations. This method will allow PRICE to reach a large number of micro-, small, and medium fish farmers, many of which are women.

The farmers, both commercial and household based, will be trained in groups with a dedicated group leader for every 25 farmers. After their training, the group leader will remain in contact with them to share new developments, answer questions, and provide additional relevant information. Group leaders will also act as a conduit of information between the farmers and the

PRICE project to provide performance data, share successes of the farmers, and to learn relevant up-to-date information that can be passed on.

PRICE will work with its partners to increase farm productivity, follow sustainable and environmentally friendly integrated aquaculture practices that contribute to food security, strengthen organizations for sustainable production, and facilitate climate change adaptation through a variety of mechanisms including:

- Training farmers to upgrade farming techniques, using quality grade inputs and following sustainable management.
- Resource management of seasonally available seed through value addition to seeds by over-wintering.
- Assisting the transformation of seasonal farming to perennial under changing climatic conditions.
- Adaptation of innovative aquaculture, such as floating cage farming, to adapt to rising sea levels and inundation of low lying areas.
- Providing embedded services to farmers through fish seed traders, feed marketing agents, and micro-input sellers.
- Promoting access to high-quality inputs through group procurement and linkages.
- Assisting organizational strengthening to increase the sustainability of the associations and groups.

In all of its interventions, PRICE will emphasize responsible farming and non-use of banned and questionable substances that could endanger public health and degrade the eco-system, environment, and biodiversity. This will be accomplished through training, leaflets, posters,

manuals, and workshops. PRICE will continue to promote eco-friendly, crop rotational, symbiotic, and integrated fish, rice, and horticultural farming to aid in food security and income generation by the target farmer groups.

Aquaculture products are generally perishable and need quick washing and cold treatment to prevent spoilage, contamination, and cross-contamination during post-harvest handling, transportation, and storage. Spoilage and quality deterioration could be significantly reduced through proper cold chain management. To address this, PRICE will work to establish links for cluster harvesting, group marketing, and responsible transportation and storage for safe and hygienic fish whole sale and for sale in the retail markets.

PRICE will continue to work with the dry fish manufacturing association to help them procure raw materials in groups, transport them in a responsible manner, and produce hygienic dry fish. In addition, PRICE will assist them in improving their packaging and storage for domestic consumption and for export and will explore possibilities of some non-traditional fish items such as fish scale, dried air bladder, and dried catfish fat.

As aquaculture has been historically considered an occupation for men, women's participation has been low, about three percent nationally, with the exception of processing plants. PRICE's experience has shown that more females can participate in this economic activity in rural and household based fish farming units, which results in gender empowerment, increased household income, and improved family nutrition and food security. PRICE will continue to develop partnerships with organizations that are able to organize women in greater numbers to participate in fish farming.

To build upon previous success of teaming with micro-finance NGOs, PRICE will continue to partner with local NGOs interested in financing household-based aquaculture through short, medium, and seasonal micro-financing.

D. Interventions

Increasing farmers' access to inbreed free seeds. PRICE will work with hatchery-based partners to link them to inbreed-free resources of both indigenous and exotic commercial farming species. PRICE will also train them to raise inbreed-free resources to brood levels on selected and protected brood ponds through better feed and farm management. PRICE partners will be linked to inbreed-free indigenous species sources in the Halda River and will also be linked with BFRI who has procured some inbreed-free resources of exotics from their source of origin.

Facilitate access to quality seeds, feed, and other inputs for fish farmers. Fish seed in Bangladesh is produced seasonally and its use is restricted to the monsoon season only. PRICE will work with hatcheries and nurseries to conduct responsible nursing of fish spawn to produce quality grade fries and fingerlings for conventional farming. This will also add value to off-season fish spawn by over-wintering them for use in perennial farming. Nurseries associated with partner organizations will be linked to partner hatcheries to provide off-seasons spawn for over-wintering. Partner organizations will receive assistance in group procurements of better quality grade inputs, seeds, feed, lime, fertilizers, micro-nutrients,

allowed antibiotics and probiotics, medicine, and water purifiers. This assistance will help increase production while simultaneously improving the quality of the produce. The project will continue to assist fish seed traders' associations, input sellers, and feed millers to supply fish seed, feed, and other inputs to farmers with embedded services.

Promoting good aquaculture practices. PRICE will continue its work on training organization and association members on improved farming techniques. Roughly 15,000 fish farmers will receive training in improved/high density and semi-intensive fish farming techniques. This will build capacity and increase yield, resulting in higher investment and employment creation. These

interventions will expand the average yield from 3.5-4.5 ton/ha to 6-7 ton/ha by the end of 2011. There may be some exceptional annual yields of 40-85 ton/ha as already evidenced by some farmers in Bogra and Mymensingh.

PRICE will arrange an exposure trip for leaders of those associations with low production levels to production farms where they can observe how the more productive, similar sized productive farms are working. PRICE will also work with different value chain actors to develop an exposure visit/study tour to either Vietnam or the Philippines to observe high yielding hatcheries and seed production. Through this trip participants will also learn about better farming methods, feed manufacturing, post-harvest handling, cold chain management, and processing activities.

Promoting perennial integrated farming for varied crop production for income and food security. PRICE will facilitate farming integration among members of farming associations and groups to produce multiple crops seasonally and more than one crop by successive crops or crop-rotation. As fish is produced in the water only, which is confined by embankments, the banks of the ponds will be used to produce vegetables and short-duration fruit for family consumption and income generation. PRICE will facilitate a study to determine household consumption tendencies and assess the potential for household pond raised fish and integrated farming produce to increase family nutrition while mitigating food security.

Promoting fish farming in floating cages in open water. To keep up with modern climate realities, innovative aquaculture techniques are required. Floating cage farming addresses rising sea levels and inundation of low-lying areas. PRICE train those who have initiated floating cage-based farming of some fast growing fresh water species on sustainable and diverse cage farming and management. Currently, mono-sex tilapia are the most common floating cage farmed fish, but there are signs that many other species may be incorporated into cage farming giving the current conditions in Bangladesh. PRICE will promote these techniques in perennial natural depressions, large lakes, coastal rivers, and estuaries not in danger of cyclones and tidal bore.

Integrating smallholder farmers into growing market of aqua farm products. Fish farmers and aquaculture groups currently have less access to banks and other institutional credit due to a variety of reasons, most often lease-based economic activities or multi-ownership of farming water bodies. PRICE will assist farmers and farming groups in assessing institutional credits and bank loans by arranging workshops, establishing links, and building capacity to develop business plans. PRICE will work with associations and groups to introduce and encourage mechanisms for collective collateral and will train group members on group marketing of fish to increase their bargaining powers. PRICE will create linkages between farmers' associations and wholesalers and supermarkets, enabling bulk selling.

Strengthening the institutional capacity of the associations/cooperatives. PRICE will work with its partner organizations to strengthen them and help them become more sustainable. This assistance will help them to provide better member services for group procurement of inputs and increased production. Associations will be able to keep and produce documentation that shows cost-benefit analysis of their work.

Promoting a market for hygienic dry fish. Hygienic manufacturing of dry fish will be promoted through trainings to entrepreneurs and their representatives and workforce. PRICE will work with the dry fish manufacturing association to help them procure raw materials in groups, transport them in a responsible manner, and to produce hygienic dry fish. Once this is accomplished, PRICE will help them to improve the packaging of their product and its storage for domestic consumption and export. Concurrently, PRICE will work with them to explore possibilities for non-traditional fish items such as fish scale, dried air bladder, and dried catfish fat.

Supporting fish processors for value-added product development and cold chain management. PRICE will work with the fish processors to link farmers and farming groups while explore the possibilities to export fish fillets to Eastern European countries. PRICE will also work to increase the amounts of current exports to ethnic markets by farming groups, which include fish like climbing perch, and stinging catfish, through linkages to partner processors. Large-sized mono-sex tilapia which, through innovative cage farming is free from bad odor, will be introduced to the processors for them to explore in the export market.

PRICE will work closely with the processors to reduce post-harvest losses by improving post-harvest handling and cold chain management. PRICE and its partner processors will jointly educate suppliers to ensure ongoing post-harvest handling vigilance. For bulk producers at the farm level, PRICE will design cold chain management solutions, such as creating awareness of the need for quality grade ice for chilling. As a result of these activities, post-harvest losses will be reduced because of more responsible post-harvest handling, packaging, storage, and transportation.

GANTT Chart for Fish Sector Activities 2010-2011

Activity in detail	1 st QTR			2 nd QTR			3 rd QTR			4 th QTR			5 th QTR			Probable Partners
	Oct 10	Nov 10	Dec 10	Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	
1. Increasing farmers Access to inbred free seeds																
1.1. Inbreed free broods sources																NBTH, CAPL, MFFH, PMH, RFH, SMH, SBPL, NFC (hatchery groups)
a. Link hatcheries to inbreed-free local culture species																Same as above
b. Link hatcheries to inbreed-free exotic culture species																Same as above
c. Responsible in-house brood bank management in hatcheries																Same as above
d. Trainings on brood management, biosecurity in hatchery																Same as above
1.2. Assist production and use of in-breed free fish seeds																NBTH, CAPL, MFFH, PMH, RFH, SMH, SBPL, NFC (hatchery)
a. Promotion: mass production in-breeds free seeds in selected hatcheries																Same as above
b. Demonstrate performance of in-breeds free seeds on growth and FCR																Same as above
c.Training programs on inbreeds free seed production																Same as above
1.3. Assist linking with fish seed traders with seed sources																
a. Link nursery, seed traders to hatcheries producing quality seeds																Same as above
b. Linkage: farm group and hatcheries with in-breeds free seeds																
1.4. Promote perennial use of fry and fingerlings for year round production																MMS, MMCS, KMPUS, GMSS, KMCSS, PBCS, SSS, JSK, TMUS, TFFS, MFBA, AMBS, RDF, (farming groups)
a Assist mass scale production of																Same as above

Activity in detail	1 st QTR			2 nd QTR			3 rd QTR			4 th QTR			5 th QTR			Probable Partners
	Oct 10	Nov 10	Dec 10	Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	
over-wintered seeds																
b. Popularization of over-wintered fingerlings																Same as above
c. Assist seed traders to give embedded services on GAP & farming																Same as above
d. Demonstrate of performance on OW seeds on survival and FCR																Same as above
e. Training: OW process, transportation of OW seeds																Same as above
2. Facilitate enhanced access to quality feeds & other inputs for the fish farmers.																MFBA, MMS, MMCS, KMPUS, GMSS, KMCSS, PBCS, SSS, JSK, TMUS, TFFS
a. Linking workshop input sellers & farming groups																Same as above
b. Training program on group procurement of inputs																Same as above
3.0. Promoting Good Aquaculture Practices (GAqP):																
3.1. Training on productivity																MMS, MFBA, MMCS, KMPUS, GMSS, KMCSS, PBCS, SSS, JSK, TMUS, TFFS, NBTH, CAPL, MFFH, PMH, RFH, SMH, SBPL, NFC (farming groups)
a. Training on improved high density & intensive farming																Same as above
b. Training on seasonal farming with small fish																Same as above
c. Training on crop rotation farming																Same as above
d. Training on integrated farming																Same as above
e. Training on intensive case culture																Same as above
f. Capacity build up of micro inputs sellers																Same as above
g. Embedded services: inputs sellers to farmers n judicious use																Same as above
3.2. Studies on fish consumption at household level																Mymensingh fish culture region
3.3. Arrange in-country study trips to lead farmers/ assoc.																MMS, MFBA, MMCS, KMPUS, GMSS, KMCSS, PBCS, SSS, JSK, TMUS, TFFS, NBTH, CAPL, MFFH,

[illegible]

[illegible]

Activity in detail	1 st QTR			2 nd QTR			3 rd QTR			4 th QTR			5 th QTR			Probable Partners
	Oct 10	Nov 10	Dec 10	Jan 11	Feb 11	Mar 11	Apr 11	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	
c. Link: farmers/enterp to micro-finance sources by W. shops, meetings																Same as above
d. Strengthening VCF through fares/workshops for value chain actors																Same as above
11. Competition: production, processing & compliances																ALL PRICE ASSOCIATED PARTNERS

II. SHRIMP SUBSECTOR

A. Overview and Constraints to Growth

The shrimp industry in Bangladesh focuses on two species, freshwater prawn known as *golda*, and brackish water black tiger shrimp known as *bagda*. *Bagda* is an export oriented industry, and shrimp processing and export is one of the country's major foreign currency earners. The sub-sector has great potential for rural job creation, investment, and poverty alleviation and already accounts for nearly one million jobs throughout the value chain.

Shrimp production and export from Bangladesh has faced major internal and external challenges related to its growth and competitiveness. These include low productivity and lapses in compliance with international food safety and labor standards. These problems, compounded by the allegation from the EU about *golda* contaminated with nitrofurans metabolites, the global recession in 2009-2010, and cyclones in the *bagda* farming area have resulted in recent reductions in imports. In 2008 Bangladesh exported shrimp worth USD \$445 million, while in 2009 the exports were only USD \$343. While there are signs that the 2010 export figure will surpass that of 2009, it will still not reach that of 2008.

Frozen shrimp and prawn from Bangladesh, without significant value-added additions, are high value export commodities. The main destinations for these are high-end consumer markets such as Europe and the United States. These importing countries have tough quality specifications for importing human edibles, which means that maintaining hygiene and food safety standards is a top priority for this subsector.

Rejections of shrimp and prawn shipments to Europe during 2009 and 2010, due to antibiotic contaminants, led the Bangladesh processing industry to declare a temporary, voluntary ban on exports – especially fresh water prawn, to EU countries to avoid possible sanctions. In addition, labor law is another important issue for export markets – especially with the United States. Shrimp exports to the United States are at risk, due to the perception of improper labor practices and human rights violations by engaging under age workers in the Bangladesh processing plants.

Though Bangladesh's farms are not very efficient in producing high per unit area production, they do have a competitive edge in that the individual units produced tend to be much larger. The size of the shrimp from Bangladesh is in high demand in the export market, but the share of the world market is small, only three percent. This share is much smaller than what it should be, given the potential of the farming areas engaged in the export area. Many of the problems with low per unit area production arise from low-density farming, rudimentary technology, and inadequate access to virus-free post-larvae (PL).

The main shrimp crop of Bangladesh is the *bagda*, which is faced with mass mortality when outbreaks of the deadly white-spot virus disease occur. There is no curative measure once the crop is infested with the virus, so preventative measures are necessary. The most effective way to combat white-spot virus disease is to initially screen PL to confirm whether or not they are virus

negative. Using virus negative PL to stock farms is the first steps towards producing disease free, healthy *bagda*. However, screening for and use of cleaned PL for farming is not required and farmers generally do not want to pay extra for screened PL. In addition, there is a scarcity of screened PL of *bagda* and hatchery produced PL of *golda* for commercial farming.

Both *bagda* and *golda* farming in the country is done following traditional methods, where farmers use questionable and non-traced inputs from input sellers and other sources. Poor quality inputs, seeds, feeds, lime, and fertilizers impede growth of *badga* and *golda*. Poor quality supplemental feed is often filled with useless items that pollute and deteriorate soil and water. Some commercially available supplemental feeds are suspected to contain a parent drug that leads to antibiotic metabolites in farmed shrimp. This lack of traceability of shrimp, due to fragmentation of farming units, makes it difficult to identify sources of banned chemicals, antibiotics, or other types of contamination.

Bangladesh's hot and humid climate increases chances for perishable items to spoil quickly, making proper storage and responsible post-harvest handling is critical. Currently, inadequate post-harvest handling of shrimp and prawn, including lack of cold chain management, storage, questionable ice, and insulation devices, poor packaging, and a poor transport system has resulted in rapid quality deterioration, contamination, and spoilage. Cross-contamination during handling, packaging, and transportation is a serious problem in harvested shrimp and prawn.

Bangladesh mainly exports blocks of frozen shrimp and prawn without a significant amount of value added products, such as ready to cook or ready to eat. There are opportunities in the international market for higher margin export items. Currently China, Thailand, and Vietnam are taking advantage of these opportunities, and Bangladesh is well positioned to join them.

PRICE worked closely with its partners during a work planning workshop in the Jessore-Khulna region. Through detailed discussions, the stakeholders identified some constraints to growth in the development of the shrimp subsector. They are:

- Farmers' inadequate access to screened PL leads to high incidence of white-spot virus disease outbreaks.
- Farmers' lack knowledge of techniques to conduct shrimp farming across the seasons, often leading to single cropping.
- Inadequate access to premium *golda* HPL for integrated farming leads to inefficient use of the water bodies.
- Farmers' poor perception about feed quality coupled with their inadequate access to quality feed for shrimp farming leads to slow growth of the shrimp, resulting in poor harvests.
- Farmers' lack of knowledge and skills in adopting improved farming practices leads to low yields.
- Disorganized, small farms lack scale and access necessary to adopt improved farming practices.
- Lack of traceability.

- Lack of farming integration leads to underutilization of resources.
- Presence of nitrofurans and other banned substances in farmed prawn leads to frequent rejection of export consignments from the buyers.
- Negative perceptions of the buyers about labor practices in the shrimp processing industry threatens GSP cancellation as well as an import ban from the United States.
- Inadequate biosecurity and HACCP compliance in processing plants leads to rejection of consignments, mostly from the European Union market.
- Lack of adequate value added products (VAP) in shrimp results in low volume of exports from the sector.
- Lack of rewards for good performance.

B. Progress to Date

PRICE has provided technical assistance to approximately 13,700 shrimp farmers to increase productivity using screened PL of *badga* and other traceable inputs under outgrowing schemes. In this subsector, PRICE mainly works with its Greater Harvest and Economic Return from Shrimp (GHERS) initiatives, subcontracted to WorldFish Centre. This year, the target of reaching 8,000 farmers was exceeded by nearly 1,000 farmers.

The farmers reached through the GHERS initiatives were grouped under depots and trained by extension specialists that provided technical support to the farmers based upon their groupings. Over the course of one year, one extension specialist will work with 225 farmers to provide training, counseling on high-density farming, using screened PL and other traceable inputs, and working to provide basic inputs on soft credit through value chain financing.

PRICE assisted a commercial service provider (PRANTI Laboratory) to work with hatcheries to test brood, nauplii, and PL using polymer chain reaction (PCR) machine and other laboratory procedures. These tests determined if PL were virus negative for the GHERS farmers. PRANTI Laboratory also promoted screened PL of *badga* under a commercially viable premium charge for screened PL, mitigating potential viral disease outbreaks.

PRICE is also working with seven small outgrowing farming groups in southwestern Bangladesh to reach 5,000 farmers and promote integrated shrimp farming to increase yield and profit for farmers. Of those farmers, more than 20 percent have already received management trainings to help them to access better inputs through group procurements and better marketing. By the end of 2011, the total number of shrimp farmers assisted by PRICE will exceed 16,800. PRICE also worked with a hatchery and feed mill to promote the supply of better inputs.

PRICE collaborated with the Bangladesh Shrimp and Fish Foundation (BSFF), US Food and Drug Administration (USFDA), and Joint Institute of Food Safety and Applied Nutrition (JIFSAN) to arrange a good aquaculture practices training. This training focused on food safety, environmental sustainability, and social responsibility including human and labor rights. The

groups are currently collaborating to establish an aquaculture and aquatic food safety center as an affiliate of the fishery product business promotion council under a public private partnership.

To reinforce integration with international food safety requirements, PRICE has been working with the Government of Bangladesh to increase the capacity of the DOF's Fish Inspection and Quality Control laboratory (FIQC). In doing so, the laboratory will be able to accurately screen and test export consignments before they leave the country. PRICE arranged five training programs (including a train the trainers program) for 73 trainees to assist FIQC in complying with international food safety requirements related to microbial, chemical, antibiotic, and general testing procedures. The eight master trainers provided training for an additional 100 laboratory operators and field level FIQC inspectors.

In response to allegations of child labor rules violations, PRICE worked with the BSFF to audit and validate compliance of ten shrimp processing plants under a pilot project with the Bangladesh Labor Law 2006. They then developed and implemented compliance courses for workers, managers, owners, and workers of the suppliers.

In a joint effort with the BFRI and DOF, under the National Action Plan of the GOB to combat nitrofurantol metabolites in *golda*, PRICE conducted a two-phase experiment. The first phase was to determine the probable source of nitrofurantol metabolites in farmed prawns. At the end of this phase it was determined that the metabolite contamination to live prawn in farming conditions originates in certain shrimp/prawn, poultry, and fish feeds. The second phase of the experiment attempted to clarify whether or not nitrofurantol metabolites accumulated farmed prawn after ingesting and digesting contaminated feeds could be removed from live prawn by withdrawing the contaminated feeds and feed them then with confirmed nitrofurantol metabolites free feeds. Through this experiment it was discovered that the nitrofurantol metabolites might be susceptible to elimination in live prawns relatively quickly with the new diet of nitrofurantol free feed.

C. Strategic Focus

In recent years, the world market has been flooded with small sized shrimp and more countries joining the list of exporters of farmed pink shrimp, but the world demand for larger shrimp remains strong, despite the economic downturn. Even though Bangladesh only controls three percent of the supply to the world market, it has a niche in larger shrimp, giving it a competitive edge over other shrimp producing countries. Processing capacity in Bangladesh is being underutilized at about twenty percent capacity, so the limitation for growth is at the farming level. Because of this, PRICE is prioritizing the farming segment of the value chain.

Shrimp farming is concentrated in the southwestern part of Bangladesh, mainly in Khulna, Satkhira, Bagerhat, and Cox's Bazar. More than 76 percent of shrimp production actually comes from three districts in greater Khulna. Prawn farming also flourishes in the southwestern part of the country and stretches north, covering the greater Jessore area. More than 80 percent of prawn production comes from the Jessore-Khulna belt.

To make the best use of its limited physical fisheries resources, PRICE is promoting integrated farming together with monoculture of shrimp. Through GHERS, PRICE is planning to reach approximately 30,000 crop-rotational shrimp and prawn farmers by the end of the project, which is equivalent to 25 percent of all shrimp farmers in the southwestern part of the country. The crop-rotational method will incorporate plankton feeding fish and embankment horticulture crops to aid income generation, increased exports, and providing items for household consumption to increase food security. This will be accomplished through extending and intensifying the outgrowing schemes implemented through GHERS.

The outgrowing system addressed low productivity through a variety of methods, including improved productivity through upgraded farming techniques and farming management, using hatchery produced screened PL for shrimp and prawn, value addition to shrimp, prawn, plankton feeding carp, and mullet seeds through over-wintering, promoting the production of two crops per year, and linking outgrowers to traceable and quality grade inputs.

One of the main goals is to popularize the use of screened PL to prevent disease outbreaks. Farmers do not generally use screened PL due to its cost and lack of regulations for its use. PRICE is planning to demonstrate how the use of screened PL significantly reduces the outbreaks of viral disease by surveying farms used screened and non-screened PL.

PRICE has demonstrated through its experiments the source of nitrofurans metabolites in farmed prawn, and the methods by which contaminated prawns can remove the accumulated metabolites within a couple of weeks. To build upon these experiments, PRICE is planning to popularize the mechanisms to farmers by arranging workshops in prawn growing areas where those prawns may be threatened with metabolites. Trainings, leaflets, posters, and manuals will help to create awareness around avoiding the use of banned antibiotics and chemicals in farming.

PRICE is planning to further educate farmers about crop-rotational and eco-friendly integrated farming methods and patterns (such as shrimp/prawn-fish-rice-horticulture) to maximize production and improve income and family nutrition that will indirectly help food security issues. Additionally, PRICE will assist shrimp hatcheries in producing screened PL, individual farms that are opting for more intensive farming methods, and feed mills that are willing to produce commercial feed with traceable inputs. On a more widespread level, PRICE is working with enterprise based micro-sellers organizations to increase the sales staffs' capacity with their marketing networks across the country.

With processing plants PRICE will focus on capacity building in the areas of HACCP, biosecurity, SOP, and SSOP. Additional trainings will include management to increase productivity and effective factory management.

PRICE will continue to collaborate with the GOB to strengthen its capacity to conduct pre-embarkation testing of frozen shrimp as well as to identify sources of nitrofurans and other antibiotic contaminants while also taking measures to combat it. In order to ensure compliance

with Bangladesh Labor Law 2006 PRICE will also continue to work with processing plants on compliance through their management and workers.

D. Interventions

Promoting a market for virus screened PL. Through the GHERS program PRICE will build the capacity of the PRANTI Laboratory to help them increase the number of screened PL they can produce. PRICE will also encourage transportation of screened PL to significantly increase the availability of it in different regions and to help make it a more cost effective input. With farmers PRICE will work to ensure use of screened PL, making it mandatory for the GHERS farmers. Through their example and success, other non-GHERS farmers will be more likely to use screened PL. The GHERS extension facilitators will conduct campaigns, yard meetings on contract farming, and other activities to further promote the use of screened PL.

Promoting over-wintering of screened badga PL. Currently Bangladesh practices traditional and extensive methods of farming that require long durations and result in a single crop per year. Good management and use of supplemental feeding can effectively reduce the farming time to three to four months and can facilitate two to three cropping patterns of shrimp farming with much higher yields than the current production rates. Over-wintering of screened PL can supply farmers on a perennial basis so that they may produce more than one crop per year. PRICE will promote this system with its farmers.

Promoting the use of quality golda HPL for badga farmers. PRICE will continue its efforts towards traceable production of PL and supply of quality grade PL to farmers. Partners will be given continued assistance on better feed formulation, manufacturing, and on training of dealers to provide embedded information services to farmers. This will help in increasing awareness of farmers and feed mills on the economic value of producing and using proper feeds.

Promoting a market for premium quality feed for shrimp farmers. Shrimp farms in Bangladesh are inefficient at producing higher yields partly because they do not use supplementary feeds of good quality. To keep costs low, many feed mills produce low cost feed that contains junk. PRICE will assist feed millers to produce quality grade feeds that will get a high price by linking them with international input suppliers and strengthening their capacity to produce premium feed. Both GHERS and non-GHERS farmers will be trained on the importance of using high grade feed in shrimp farming. To support contract farmers in the outgrowing system, PRICE will arrange linkage workshops for feed mills, farmers' associations, and depots.

Promoting good aquaculture practices. PRICE, in partnership with WFC is implementing the GHERS initiatives in greater Khulna. Because GAP is an important element of GHERS, PRICE will train organized farming groups on high-density and semi-intensive farming methodologies to increase outputs. PRICE will also support the establishment of embedded extension services from depot owners to shrimp and prawn integrated farmers, including use of screened PL and other high quality inputs. PRICE will provide support to depots to recruit and train depot based extension facilitators who will in turn train farmers groups on better farm management practices.

Promoting contract farming system. Depots are a focal point for outgrowing schemes as service providers for contract farmers. PRICE will work with feed mills, screened PL sources, and other input suppliers to assist in value chain financing. In addition, PRICE will assist contractors in designing an efficient outgrowing system and support them by providing training on how to manage the system, creating a manual for the system, and training contract farmers on their roles and responsibilities within an outgrowing system. Approximately 23,000 shrimp farmers will be trained who in turn will work with 17-20 depots throughout the remainder of the project.

Improved farming and farm management in Cox's Bazar region. To date, PRICE has covered thousands of shrimp farmers in the southwestern part of the country where roughly 75 percent of all shrimp farms are located. However, 25 percent of shrimp farms are located in Cox's Bazar. Screened PL are produced and shifted to Khulna by air via Jessore, but these are not popularized in Cox's Bazar region yet. PRICE will organize farmer's groups in Cox's Bazar beyond the scope of GHERS and train them on improved high-density and semi-intensive methods of farming during this and future project years.

Assisting in training the entrepreneur, depots, and staff on traceability. PRICE will support training for farmers on integrated shrimp/prawn farming with fish and vegetables in enclosures and embankments. Members of farming associations and groups in clusters will learn about producing multiple crops seasonally and more than one crop by successive crops or crop rotation. Through integrated farming, PRICE and its partner organizations will address food security issues of resource poor farming families. PRICE will also facilitate a study to learn about household consumption and opportunities for integrated farming to increase family nutrition and food security.

Enhancing stakeholders' knowledge of nitrofurans issues in farmed prawn/shrimp. The presence of nitrofurans metabolites in farmed prawn has become a serious issue for export oriented frozen food industries in Bangladesh. Through its experiments, PRICE has determined a possible solution to the issue, which could have far reaching positive impacts on the industry. PRICE and the associated shrimp and prawn partners are working towards creating an awareness program on the contamination and how to get rid of it. PRICE will organize workshops to disseminate the findings of the experiments and discuss possible remedies.

Promoting compliance of the Labor Law for the shrimp processing plants. A report published last year on the alleged labor abuses in the shrimp industry created problems and raised concerns in the United States export market. To overcome this and to offset the potential negative impact while also promoting fair labor practices, PRICE will continue its work on raising awareness among local industry stakeholders, including processors and their suppliers, contractors, agents, and employees, on the Labor Law. Training materials have already been produced and is now in the follow-up stage. PRICE will evaluate the effectiveness of this program and determine the way forward for its future implementation.

Promoting hygiene and standard biosecurity in the shrimp supply chain. PRICE is assisting and will continue to assist processing plants to improve their biosecurity measures through awareness training in areas such as personal hygiene, responsible handling, and contamination and cross-contamination during handling and transportation of raw materials. Workforce development in the processing industry through trainings is planned for 2011. In addition, senior management staff will be trained on responsible factory management, worker's welfare, and worker's obligations.

Promoting development of value added products for export markets. Bangladesh traditionally exports frozen blocks of shrimp and prawn which do not get a high price in the international market. International markets demand value added products that are user friendly and ready to cook/eat products. To keep up with the quality demanded by international buyers, PRICE will educate processing plants on value added products for export.

GANTT Chart for Shrimp Sector Activities 2010-2011

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LEATHER PRODUCTS

A. Overview and Constraints to Growth

Despite the recent global recession, the performance of the leather sector in Bangladesh has been promising. Thus far this year, as compared to last year, the sector has seen growth in the three primary sub-sectors: tannery, leather goods, and footwear. This growth has allowed the leather sector to retain its position as the fourth largest export earner in 2009 – 2010 for Bangladesh. The sector earned approximately USD \$460 million during that time period, compared to USD \$381 for the previous fiscal year. This increase in earnings showcases the tremendous potential and opportunities of the leather sector.

The table below shows the earnings from specific leather products during the 2008 – 2009 and the 2009 – 2010 years:

<i>PRODUCT</i>	<i>2008 – 2009</i>	<i>Total Percentage of Exports</i>	<i>2009 – 2010</i>	<i>Total Percentage of Exports</i>
Crust and finished leather	USD \$177.3 million	46.5%	USD \$226.1 million	49.2%
Footwear	USD \$186.9 million	49.1%	USD \$204.9 million	44.5%
Other leather products	USD \$16.8 million	4.4%	USD \$29.06 million	6.3%
Total	USD \$381 million	100%	USD \$460 million	100%

While the overall percentage of footwear has decreased as a portion of the total exports, the combined total of footwear and other leather products is still more than 50 percent. This is significant as these products are higher value than crust and finished leather. Overall, the increase in total leather exports was more than 20 percent.

During the last year, signs that investment in the sector, particularly footwear, were increasing. Many local companies expanded while concurrently there was direct investment from new ventures. Some well known international brands, such as Adidas, have either explored the market or have already invested. Other, lesser known brands, such as Young One, Blue Ocean, Tata, Bengal Shoes, and Cosmos are doing the same.

One of the main concerns about the expanding market, however, is the acute shortage of skilled workers and floor level supervisors. This shortage will become even more severe when these new ventures began operations. A recent International Labor Organization study stated that each year 60,000 new skilled workers are required to keep up with the current level of investments in the sector. Shortage of skilled labor has become the primary constraint to growth for the leather sector. PRICE has been and will address this issue through the planned interventions.

Currently, the leather sector in Bangladesh is dominated by small and medium enterprises (SMEs). Even though a few large enterprises own more than 90 percent of the exporting industries, the leather sector has between 2000-2500 MSMEs who feed the local market directly or by subcontracting to the large enterprises. To a very limited extent they serve the export market. Despite the small percentage of the export market they control, the MSMEs employ more than 100,000 workers. Unfortunately, the MSMEs suffer from a lack of access to market information, market linkages, and finance. In addition, they tend to operate inefficiently, especially in the areas of production, production cost, and compliance. In order to increase and speed overall growth in the sector, the MSMEs need to be strengthened.

While in most value chains service providers play a critical role in addressing constraints of the actors to increase competitiveness among enterprises, the service providers in the leather sector tend to be insufficient and inefficient. There is no dedicated vocational school or training institute in Bangladesh focused on producing skilled workers or supervisors. Currently Bangladesh College of Leather & Engineering Technology (BCLET) is the only institute producing technicians and managers for the leather sector. Because the acute shortage of skilled workers has become more and more apparent, the Government of Bangladesh in collaboration with concerned partners is creating the Center of Excellence for Leather (COEL) for skilled workers. While this is a good step forward, more needs to be done, especially during the time between now and when the COEL is operational.

Another constraint to growth is ensuring that export products meet the required standards for exported leather materials. Quality certificates based upon several chemical and mechanical tests are required prerequisites for exporting finished leather products. Currently the Bangladesh Leather Service Center (BLSC) located at the BCLET laboratory is the only facility in the country that is able to perform these tests. Accreditation of additional laboratories to do this testing and developing promotional activities for the industry to better leverage the BLSC would help alleviate this constraint.

Finally, improper flaying of leather leads to waste and therefore, lost of potential revenue. Bangladeshi leather as a raw material has natural features such as a uniform grain pattern and strong fibers. These features are lost and leather is rife with manmade defects when it is improperly flayed. Nearly half of the 200-220 million square feet of raw skins and hides procured by the leather sector on a yearly basis are collected during Qurbani, when people sacrifice cattle. Of that total, nearly 20 percent is lost due to the manmade defects. To counteract this, continuous efforts to increase awareness of proper flaying techniques are necessary.

B. Progress to Date

PRICE has put significant efforts towards reducing the shortage of skilled workers in the leather sector. Initially PRICE focused on developed skilled sewing operators, but has now expanded through leveraging resources from the Leather Goods & Footwear Manufacturers and Exporters Association of Bangladesh (LFMEAB). Together, more than 1,500 new workers have been

trained through on the job training programs. Of those trained, more than 500 have accepted formal jobs in the leather sector. PRICE also developed five training modules focusing on sewing; manufacturing of footwear and leather goods (cutting and sewing); handmade leather goods and footwear; and, in-process quality control in footwear manufacturing.

Currently PRICE is partnering with 40-50 SMEs to help them to become more successful. This has been accomplished through increasing their market linkages, helping them gain access to finance, enhancing the skills of their supervisors, upgrading their processes for production and eliminating inefficiencies, and exposing the SMEs to better business practices. PRICE has worked to form an SME group of where the SMEs are better able to leverage each other.

Seven leather technologists have been linked to a leading manufacturer, Aarong, and three of those are now listed as a regular supplier for the enterprise. To help leather technologists utilize resources available to them most effectively, PRICE has worked with 13 leather technologists to form an informal group. Together, they have been able to leverage each other's resources. PRICE continues to work on this initiative to create new linkages.

In addition to training new workers for the sector, PRICE has worked with several SMEs to conduct skill enhancement training for their workers. The bulk of these SMEs are subcontractors to Aarong. The workers of these subcontractors were given skill building trainings in cutting, production planning, costing, and efficiency. PRICE will be providing follow-up training to approximately 300 staff members of these 20 subcontractors. One of the reasons for the success of these trainings is gaining the support from the owners first, so that they pass down the importance of the trainings to their workers.

In collaboration with the SME Foundation and International Trade Center, ITC Program, PRICE has worked with 25 SMEs to improve their access to finance. At least four SMEs received loans totaling approximately USD \$240,000 to employ new workers, buy new machines, and rent new production space.

PRICE has been working with local SMEs to upgrade their processes, piloting a program with seven selected SMEs. This pilot upgrade has focused on the areas of job simplification, reducing inefficiencies in the process, and quality improvement. Those SMEs which participated in the pilot have already implemented changes to their processes, including job simplification, cost savings, and use of appropriate tools, and are beginning to see the positive impacts and benefits of these changes.

Working with the Business Promotion Council (BPC), PRICE has been supporting BLSC to strengthen its capacity as a service provider to the leather sector. PRICE trained nine of their staff members on UV machine operation, allowing them to test for the presence of two hazardous chemicals, formaldehyde and Chrome VI in leather. Additionally, PRICE created a pool of 15 individual training and development service providers who will be strengthened and gradually introduced into the market to provide services for commercial businesses. PRICE has also

collaborated with BPC and BLSC to provide skill enhancement training to floor supervisors, having thus far trained 17 supervisors from ten SMEs.

PRICE conducted a flaying campaign to improve the quality of raw materials (i.e. leather at its source), through awareness raising activities. Information was provided to those who sacrifice cattle during Qurbani, showing them how to properly flay cattle, flaying techniques, and basic preservation. Media, Imans, and road shows were used to disseminate the information. A follow up evaluation survey was conducted to assess the impact of the campaign. Information was gathered from 15 tanneries and the Bangladesh Tanners' Association. The results of the survey show that the campaign had positive results in cleanliness and flay cut, but that in the future, more collaboration with national bodies such as the Leather Sector Business Promotion Council (LSBPC) would increase the success of such a campaign.

In order to move the COEL program forward, PRICE has worked closely with other international donors and potential partners to promote the group effort. PRICE has provided training modules with the ILO and has shared lesson learned to make the effort more successful.

C. Strategic Focus

Based upon discussions with industry representatives regarding previous activities and potential areas of focus, PRICE will continue its support in the value-added sub-sectors, footwear and leather goods. These sub-sectors are focused on the end consumer of leather from the tannery, so PRICE will work in different spots among the value chain to ensure a cohesive approach. In order to ensure good quality inputs, PRICE will work in partnership with relevant stakeholders to continue its effective awareness raising campaign for flaying. PRICE will also work with SMEs to improve their access to finance, improve their business processes, and train workers.

PRICE will continue its ongoing feedback loop with industry experts and stakeholders to ensure continued relevance and success of project activities. Based on current discussions with these groups, PRICE will undertake the following broad based activities during this work plan year:

Workforce development. The number one constraint, as defined by industry experts, the shortage of a skilled workforce in the leather sector. PRICE will continue to assist the sector in developing the skills of new workers. As a parallel initiative to developing the skills of new workers, PRICE will take initiative to also develop the skills of new floor level supervisors.

SME development. To promote overall development of the leather sector, PRICE will focus on the SMEs, who provide many of the inputs and often subcontract to the larger industry players. As a main player in the industry as a whole, PRICE will focus on improving the workforce skills and market linkages of SMEs. PRICE will work to provide access to finance for these SMEs while also exposing their workforce to better business practices to ensure continued growth and strengthened business.

Service provider development. PRICE will continue assisting BLSC in strengthening its capacity to sustainably provide quality testing services to the leather industry. Industry stakeholders are realizing that the sector benefits when a variety of sustainable services are available on a regular basis, such as training, quality testing, and research and development. PRICE will work closely with other development organizations and with industry players to build the capacity of the COEL.

Quality improvement of basic raw materials. Good quality finished products depend on the quality of the raw materials. Because many of the seasonal flayers lack knowledge of proper flaying techniques, a significant amount of commercial value is lost when people sacrifice cattle during Qurbani. Based on the experience of the previous two years, PRICE will again conduct an awareness raising campaign on proper flaying techniques and increase the total commercial value of raw leather produced during this critical period.

D. Interventions

Improving the quantity and quality of the skilled workforce

Partnering with the industry to train new workers. PRICE has been working with several partners to develop the skills of new workers through on the job training, particularly for the footwear sub-sector. The primary focus of these trainings has been cutting, prefabricating and sewing, and assembling. PRICE will continue to support these trainings, particularly with the increased interest and demand from member enterprises. Recently PICARD, Bay Footwear, Apex Leather Craft, and Bengal Shoes each submitted proposals for joint collaboration with PRICE and LFMEAB. PRICE may also expand its training area outside of Dhaka to enterprises in Chittagong. Through this activity, 3,500 new workers will be trained, of which 1,300 will get full-time jobs within the footwear and goods sub-sectors.

Training of floor supervisors. PRICE will conduct a pilot for approximately 100 new floor supervisors, training and developing them. These supervisors will be selected based upon established criteria, such as education level, work ethic, and age. BLSC, BPC, and PRICE will collaborate to select the candidates. The training for the selected candidates will be for four months and will cover both theoretical and practical applications on the production of footwear and leather goods. This two phase training will first focus on the theory and then shift towards hands-on learning as the participants spend 75 percent of their training on the factory floor. Once they have completed this course, it is anticipated that the participants will easily get employment opportunities within the sector.

Supporting a sector specific skill center – COEL. Presently, PRICE is the only development organization that provides workforce development support to the sector. Given the large nature of the problem, PRICE is not able to tackle the problem alone but rather works collaboratively with the Industry Skill Council (ISC), whose mandate is to establish a sector specific skill center, COEL. The objective of COEL is to serve the sector as a one-stop resource center and to act as a sustainable service provider, developing, supporting, and strengthening the workforce in the leather sector. PRICE will work closely with other donor and development organizations to

move this initiative forward. In this work plan year, PRICE will develop training modules, provide trainers, conduct training of trainers sessions, develop a center website, and help with international linkages. Once operating, COEL will train approximately 3,000 workers per year through its apprenticeship program. PRICE will work with its partners to identify and bring international experts and trainings to the center.

SME development

Assisting SMEs to build linkages with leading firms and markets. PRICE will continue its efforts towards linking SMEs with lead firms by arranging linkage workshops that allow SMEs to showcase their products to potential new buyers. For these types of initiatives, PRICE will work with SMEs to create and prepare product catalogs and samples to show the potential buyers. SMEs will be selected based upon references from beneficiaries, consultants, experts, and associations. Ten SMEs will participate in these initiatives.

Supporting selected SMEs to train new workers. PRICE has facilitated the formation of an informal group of leather technologists and SME entrepreneurs. Due to support received from the PRICE project, several of these people have expanded their businesses and will hire 50 new workers. PRICE will continue to work with them by providing training in cutting, prefabricating and sewing, mesh construction, and assembling to these new workers.

Collaborating with lead firms to enhance their subcontractor's workforce skills. PRICE will team with leading industry organizations such as Aarong, Gallerie Apex, and Jennys Shoes to train the workers of their subcontractors. These trainings will build the technical skills of their workers and supervisors while also looking at overall operational procedures and management. Through these trainings, 100 workers and/or supervisors will be trained this year.

Assisting SMEs to eliminate inefficiency from their production processes. To improve production and efficiency at the production floor level, PRICE will continue its pilot program of upgrading SMEs. Participating SMEs will learn techniques and tips to utilize within their own factories, such as job simplification and cost savings. Participant SMEs will be selected through references from beneficiaries, associations, and partners. Fifteen to twenty SMEs will benefit from this training.

Exposure visits for SMEs. PRICE will facilitate exposure visits for SME entrepreneurs, workers, and supervisors to large enterprises to see firsthand their best practices in production processes and management practices. Based on these visits, SMEs may adopt some of these practices into their own enterprises. PRICE will utilize its connections with leading firms to arrange these visits. Approximately 25 SMEs will participate in this initiative.

Supporting participation of SMEs at trade fairs. In collaboration with BPC and the Export Promotion Bureau (EPB), PRICE will support those SMEs participating in local trade fairs, including the Dhaka International Trade Fair and the Dhaka International Leather Fair. SME selection for this effort will be based upon longevity of the business, management attitude,

ability to cost share, and goods produced. PRICE will assist 10-15 SMEs to participate in each fair by developing products and catalogs and preparing them for business meetings.

The DITF will be held in January 2011. This month-long fair will help participating SMEs to promote their products and make significant sales while building connections with domestic buyers. The DILF will be held in March 2011. This shorter fair (duration three to four days) is expected to bring many international buyers to Bangladesh. Participating SMEs will have the opportunity to showcase their products to potential customers and will also be able to learn about industry trends and customer needs and service.

Assisting SMEs get access to finance. PRICE will also continue to link SMEs with financial institutions so they may work together to improve their businesses through financial assistance. PRICE is working with the SME Foundation to link SME clusters with financial institutions in Dhaka and Chittagong while also exploring cluster relocation projects and loans. Under this initiative PRICE will organize lender-borrower meets in Dhaka and Chittagong and visits to the banks for SMEs to promote increased understanding. Through PRICE's initiatives, 15-20 SMEs will be linked to banks to receiving financing.

Strengthening service providers in the leather sector.

Strengthening the BLSC. This year, PRICE will continue to build the capacity of the BLSC so that it can provide wider and improved services to the sector. PRICE will work with the BLSC to obtain accreditation for five to six essential tests for quality assurance. PRICE will also work within the industry to better promote BLSC and its services through various interactive and promotional activities. To better accomplish this, PRICE will explore bringing in international experts to train local staff on testing.

Improving the quality of hides and skins.

Conducting flaying campaigns. In partnership with several local and international organizations, PRICE will organize flaying campaigns to reduce manmade damage that occurs to hides during Qurbani. Based upon the success of the previous year's campaign, PRICE will work with local Imams to disseminate information regarding proper flaying and basic preservation. These trainings will be followed by visits to tanneries to deepen their understanding of the process, which will then be conveyed to a larger audience. PRICE will also work with BPC and the Ministry of Information to display a VDO documentary in at least ten locations across the country.

GANTT Chart for Leather Products Sector Activities 2010-2011

Activity in Detail	1 st Q	2 nd Q	3 rd Q	4 th Q	5 th Q	Resource/ Strategic partners
<i>Workforce Development</i>						
- Facilitate training for developing skills of 300 new workers with Apex Adelchi						LFMEAB, Apex Adelchi
- Support training for developing skills of 300 new workers with Landmark Footwear						LFMEAB, Landmark
- Collaborate with FB Footwear in developing skills of 600 new workers						LFMEAB, FB Footwear
- Assist training for developing skills of 600 new workers with PICARD Bangladesh						LFMEAB, PICARD
- Partner with Apex Leather Craft for developing skills of 200 new workers						LFMEAB, Apex Leather Craft
- Facilitate training for developing skills of 200 new workers with Bay Footwear						LFMEAB, Bay Footwear
- Partner with Bengal Shoes for developing skills of 600 new workers						LFMEAB, Bengal Shoes
- Partner with associations and members for developing a pool of ~100 floor level supervisors						LFMEAB, BLSC, BCLET
- Collaborate with industry, GOB, ILO, Swiss contact in operation of COEL as a new center of workers skill development						ILO, Swiss contact, ISC, GOB
<i>SME Development</i>						
- Facilitate arranging 03 Linkage Development workshops between SMEs and lead firms such as- Gallerie Apex, Bay, Bata, Westecs etc.						LFMEAB members, BPC
- Support selected SMEs in preparing for 03 linkage programs						SMEs, LFMEAB partners & Lead firms, Service providers
- Support 04 Leather Technologists Small Entrepreneurs, LTSE members for skill training of 50 new workers						LTSE, BCLET
- Partner with lead firm Aarong for enhancing skills of 75 workers of its sub contracting enterprises						Aarong,

- Facilitate training for enhancing skills of 100 sub contracting workers/supervisors with lead firm Jennys Shoes						LFMEAB, Jennys
- Collaborate with lead firm Gallery Apex in enhancing skills of 100 its sub contracting workers/supervisors						LFMEAB, Apex
- Assist selected SMEs in reducing in efficiencies from production process through process up gradation exercises						SMEs, BPC, BLSC
- Arrange 03 exposure/industry visits for SME managers/supervisors/workers to local lead enterprises to see better business practices						LFMEAB members, BPC, BLSC
- Support selected SMEs in participating at Dhaka International Trade Fair, DITF						SMEs, BPC, EPB
- Follow up activities with participating SMEs on the progress after DITF						SMEs, BPC
- Assist selected SMEs in participating at Dhaka International Leather Fair, DILF to get better exposure to local/export market and buyers						Associations, BPC, EPB
- Follow up activities with participating SMEs on the progress after DILF						SMEs, BPC
- Collaborate with SME Foundation in arranging ~03“Lender-Borrower” meet to link SMEs with Banks in Dhaka, Chittagong, others						SMEF, Banks
- Facilitate 03 SMEs factory visits for banks for their better understanding of leathers business/potential/risks						SMEF, SMEs, Banks
Service Providers (SPs) Development						
- Assist BLSC in preparing/getting accreditation of more tests						BPC, BLSC, BCLET, associations
- Support BLSC in strengthening capacity in conducting more quality tests						BPC, BLSC, BCLET
- Support BLSC in promoting its services to industry/stakeholders by arranging ~02 Interactive workshops						Association, BPC, BLSC, BCLET
Quality improvement of basic raw materials - leather						
- Support flying campaigns activities in Dhaka, Chittagong etc. to raise awareness						LOI-Asia Foundation, BPC, Associations
- Conduct a quantitative & qualitative impact evaluation of campaign activities						BPC, Association

GENERAL AND COMMUNICATIONS ACTIVITIES

A. General Project Events

Besides sector specific events, PRICE will conduct and take part in several cross cutting events with broader and more general perspective:

- America Week is a three day annual event designed to showcase U.S.-financed activities in support of the government and people of Bangladesh. Like most other USAID projects, PRICE is scheduled to participate in the upcoming America Week, to be held in Khulna from January 24 to 26, 2011.
- Gender Fair is a USAID-sponsored event designed to showcase the activities, outcomes and impacts of USG-funded projects focused on attaining gender equity in Bangladesh. PRICE will participate in this important event to demonstrate its gender-specific achievements in the horticulture, aquaculture and leather products sectors. The gender fair is scheduled to take place in March of 2011, in Dhaka.
- Planning Workshops. PRICE follows a bottom-up approach to formulate its annual work plan. The project will organize a series of workshops and meetings with its development partners in three sectors. The objectives of these workshops and meetings are to make the plan more efficient, effective and pragmatic by incorporating the inputs of the development partners across the value chains.

B. Communication Activities

Effective communications are an essential part of good project management. Effective communications in PRICE mean the project staff shares a common vision and sense of purpose, stakeholders buy-in to the project's objectives and are active collaborators, the USAID Mission feels informed and satisfied with progress, and knowledge generated is shared to ensure lessons learned benefit the wider community. PRICE target audiences include USAID, private sector partners, public sector partners, donors and donor funded projects, and the general public.

There are many potential communications tools available to share, but it is important to prioritize those that can achieve effective impact without unduly straining project resources.

COMMUNICATION TOOLS

a) Success Stories

PRICE has a rich pool of partners who have achieved some measure of success as a result of collaboration with the project. It is important to share these success stories with the Mission, with in-country stakeholders, as well as through the USAID/Washington **Telling Our Story** web site (www.usaid.gov/stories). Success stories therefore, are a primary tool for sharing project impact and will be submitted on a quarterly basis, with a minimum of 10 per year.

USAID has defined five different types of success stories. PRICE will utilize these templates to showcase the different perspectives. Each one allows for a different focus and varying the report style can help the content appear fresh and innovative. The five types are:

1. **The Success Story** format uses 500 words to tell a story of how an individual or group benefited from a USAID intervention. The first section introduces the conflict, character, or the opportunity. The mid-section describes the USAID program. The final section ends the story with a powerful close.
2. **The Case Study** uses a photograph and three paragraphs to provide an overview of a USAID effort, laying out the Challenge – describes the problem, issue, or opportunity; the Initiative – how USAID programs strategically met the challenge; and the Results – describes the end result or benefit.
3. **The First Person** focuses on how an individual benefited from a USAID program or worked with USAID to create change in the community. Stories include a 50-word quote from the person and a photo.
4. **The Before and After** uses two photographs to vividly illustrate how a USAID program made an impact. Photos should include captions detailing USAID's involvement. A 150-word overview paragraph that introduces and details the situation.
5. **The Photo and Caption** uses a powerful photo and succinct caption to illustrate how USAID programs are making a difference. Two or three paragraphs of body text provide background to the situation.

b) Weekly Updates

PRICE will provide weekly updates of its activities to the USAID Economic Growth Office. These will be short (1-2 pages) descriptions of noteworthy events and technical breakthroughs resulting from project interventions.

c) Annual Events and Activities

As noted previously in this Work Plan, the project hosts and participates in a number of events, both project-wide and sector specific, from trainings to public outreach campaigns. For the 2011 fiscal year, these include participation in a USAID-organized Gender Fair, America Week,

Dhaka International Trade Fair, Gulf Food Fair, lender-borrower workshops, and cattle flaying and food safety campaigns.

d) Progress reporting

PRICE produces three Quarterly Reports and one Annual Report per year. The reports are detailed summaries of activities and accomplishments during the reporting period in each of the sectors we work in. Additionally, PRICE submits semi-annual performance figures and narratives to the USAID Mission.

e) Quarterly Newsletter

PRICE will begin to produce a quarterly newsletter in order to reach a broad audience that's inclusive of PRICE partners and beneficiaries. The newsletter will serve to cover all sector highlights and a feature focus on at least one partner PRICE works with. This feature focus will cover PRICE's intervention and impact, the importance of the partner organization's role in their industry, and the human interest.

f) Project Website

The project website will be improved and will be constantly updated to provide the latest highlights of the project, main accomplishments, sector news, and upcoming activities.

g) Photographs

PRICE will provide training to its Communications Manager and to its technical staff on good development photography. The Communications Manager will continuously update and catalog all photos of PRICE's events, milestones, and achievements.

h) Video

PRICE will initiate a pilot video production process. The goal will be to generate two or three video success stories or testimonials this year, to convey the human side of development activities.

BRANDING AND MARKING

PRICE will comply with USAID policy directives and required procedures on branding and marking. All USAID logos on materials and communications produced by PRICE will comply with and be positioned in accordance with the standardized USAID regulations on branding. In cases when the activity is jointly sponsored with other U.S. Government and non-USG entities, the names and/or logos of these entities will be mentioned in the branding, with an equal level of prominence to the USAID logo.

C. Management Information System (MIS)

As PRICE has increased its activities and outreach, and will be working this year with over 30,000 farmers and SMEs, it has become necessary to develop a more robust information system, to manage the huge amount of data that is being generated in a reliable and effective manner. PRICE will work on the development of an Access-based system that allows the generation of multiple reports depending on the requirements of the project and of USAID. The first version of the system is planned to be completed by the second quarter of 2011.

GANTT Chart for General and Communication Activities 2010-2011

[illegible]

COLLABORATION WITH OTHER PROJECTS AND INSTITUTIONS

One of the key approaches of PRICE is to collaborate with other similar projects and with local associations and institutions, in order to leverage their strengths and avoid duplication of efforts. Since its inception, PRICE has successfully teamed up with donor projects, government institutions, universities and autonomous entities, NGOs, etc. to address mutual agendas more efficiently and effectively.

In the **horticulture sector**, PRICE will work with the USAID-funded Agricultural Biotechnology Support Project (ABSP II) to facilitate the advance trial of the fruit and shoot borer (FSB) resistant varieties of eggplant seeds. PRICE is also keen to facilitate the farmers' access to these FSB-resistant transgenic varieties of eggplants.

For promoting improved potato farming and facilitating the transfer of horticulture food processing technology, PRICE will team with the USAID-funded Farmer to Farmer program, operated by Winrock International. PRICE will assist the sector players to have access to the services of expert U.S. volunteers to address the constraints critical for the growth of their business, as well as for the growth of the sector. PRICE will also work closely with Rural Development Academy (RDA-Bogra) to enhance the availability of quality potato seeds in North Bengal and beyond. In collaboration with RDA, PRICE will support the capacity building of potato seed producing enterprises and tissue culture lab technicians.

For promoting a market for chemical-free, safe mango, PRICE will continue its collaboration with the Mango Research Institute of Chapai Nawabganj.

Additionally, PRICE will maintain contact with the donor-funded Katalyst project, the International Finance Cooperation, MDF and NATP (National Agriculture Technology Project), in order to get regular updates about their activities in the horticulture sector so as to complement activities and avoid overlaps. Other partners will include the Bangladesh Federation of Vegetables Exporters' Association, the Potato Seed Growers' Association, the Department of Agriculture Extension, and Hortex Foundation.

In **aquaculture**, PRICE will work with World Fish Center (WFC) to promote improved farming of shrimp in thousands of farms in the Khulna region. With Bangladesh Shrimp and Fish Foundation and Bangladesh Frozen Food Exporter Association, PRICE will continue its effort to support greater adherence of the shrimp processing plants to Bangladesh Labor law 2006. In collaboration with the EU-funded BEST project, implemented by UNIDO, PRICE will strengthen the traceability system in its shrimp-producing areas. For supporting improved feed formulation and production of quality spawns, PRICE will work with the Farmers to Farmers program, which brings U.S. volunteers to provide technical assistance in Bangladesh. In addition, PRICE will continue its collaboration with various universities and research institutes and use their expertise to support enhancing the competitiveness of the sector.

PRICE will continue to support the Ministry of Fisheries and the Ministry of Commerce in the National Action Plan to combat contamination in shrimp, working in particular with the Department of Fisheries and the Bangladesh Fish Research Institute. And PRICE will collaborate with the Ministry of Fisheries and with the United States Food and Drug Administration (USFDA) to train Bangladeshi instructors on good aquaculture practices, particularly for shrimp farmers.

In the **leather products** sector, PRICE will continue its support to strengthen the laboratory capacity of Bangladesh Leather Service Center (BLSC), a program implemented by the International Trade Center (ITC)-Geneva with Government of Italy funding. PRICE will also collaborate with ITC in funding a lead auditors training for SME entrepreneurs, to be held in Mumbai. PRICE will collaborate with the International Labor Organization (ILO) to support the capacity building of the Center of Excellence (COEL), an industry-backed business management organization (BMO) in the making. PRICE will also continue its collaboration with SME foundation to organize a few ‘access to finance’ workshops in Dhaka and Chittagong for the sector partners.

PRICE will strengthen its partnership with the Leather Goods and Footwear Manufacturers and Exporters Association in order to continue providing training and employment for thousands of women and men in the sector. PRICE will also support the industry associations and the Leather Sector Business Promotion Council (LSBPC) to carry out a communication campaign for proper flaying during Eid al-Adha. PRICE will team with the USAID-funded Leaders of Influence program to transmit the campaign messages most effectively, through local Imams. The project will also maintain communication with Katalyst and EU-funded projects that may work in the leather products sector in order to promote collaboration and avoid duplication of efforts.

PERFORMANCE MONITORING PLAN

Monitoring progress and evaluating results are key management functions in any performance-based management plan. Performance monitoring is an on-going process that allows managers to determine whether or not an activity is making progress towards its intended results.

Performance information plays a critical role in planning and managing decisions. Evaluation is the periodic assessment of a project's relevance, performance, efficiency, and impact—both expected and unexpected—in relation to stated objectives. The strength of monitoring and evaluation lies in its ability to provide timely performance information which is used to manage for results and to improve project performance. Analysis and communication are also important elements of performance management.

a. Performance Management Plan

The M&E system is the basis for quarterly and annual reports to USAID. The PRICE team collects and analyzes performance information regularly; PRICE not only collects performance and impact data; it adds value to the raw data by performing appropriate analysis and providing context for data interpretation, thereby transforming raw data into useful information. Results from the analyses help determine whether adjustments to the project implementation plan are required. Finally, this information is conveyed to relevant internal and external parties through communications (i.e. knowledge sharing) and achieves impact as knowledge is acted upon. To establish an effective performance management plan, an understanding and agreement among all stakeholders of the project is developed. All of them are the users of the system.

Features of the System

The M&E system is designed to involve all technical team members and project counterparts. This approach has several benefits.

Efficiency. Because technical team members and counterparts have first-hand knowledge of their activities and resulting impacts, they are best suited to efficiently collect and verify basic M&E data in their respective technical areas.

Ownership. By being involved in project M&E efforts, technical team members can ensure that the information generated is relevant and consistent with the interests of the project while our counterparts will see the demonstrated success of reforms.

Feedback. Having collected and analyzed M&E information, technical team members and counterparts are aware of project progress and will be able to use M&E information to guide project implementation.

The project M&E is responsible for organizing data collection. They ensure that project team members have the necessary tools to collect data and that they collect it consistently and at the appropriate frequency. They verify data quality and analyze and report trends. Annually, they review the appropriateness of the PMP and make necessary additions or adjustments to the existing indicators. The COP/DCOP supervises the overall M&E system. The technical area

specialists are responsible for managing the process of primary data collection and entry in their respective technical areas. They then use the information to make management decisions about implementation activities. These technical specialists communicate progress to our counterparts informally during the course of technical assistance and formally in quarterly reports to help them make decisions about necessary and priority interventions.

PRICE collects basic M&E data from the various administrative and technical records of the project, specially-designed surveys, and focus groups. We also consult records, statistics, surveys, and databases maintained by the Government of Bangladesh (GOB), USAID, other donors, and NGOs as additional sources of data. There must be a balance between M&E data collection and technical work. Our M&E system is designed to allow the efficient collection of data by project staff or counterparts.

b. The Indicators

The basic premise of the project is that true poverty reduction is about ensuring decent, sustainable jobs for vulnerable groups, with such jobs arising from increases in sales and investment across value chains in response to market demand. Indeed, the PRICE contract stipulates that sales, job, and investment increases are the essential project performance targets. As such, the focus of PRICE performance indicators is on sales, jobs, and investment—particularly for the benefit of women, young adults, and SMEs—to achieve equitable growth. These are the performance indicators for the overall strategic objective. All performance indicators have specific targets for the life of the project.

PRICE also uses tracking indicators that allow the project to track other aspects of its work and to support requirements for overall USAID reporting. For example, tracking indicators include disaggregation of performance indicators by gender, age, sector, region, exports, and SMEs. These indicators also track the number of SMEs receiving PRICE assistance and financing, training metrics, and other measures.

PRICE primarily collects data on performance and tracking indicators relevant to activities directly implemented by the project in collaboration with counterparts. This principle of “manageable interest” helps ensure that the results reported by PRICE’s M&E system are within the project’s ability to influence, particularly at the KRA level. Through these performance and tracking indicators, PRICE is able to accomplish the following:

- Capture and communicate major project impacts
- Track implementation progress against targets
- Supply information concerning major PRICE activities
- Identify problems constraining performance and resolution
- Contribute to USAID’s own performance management and reporting needs

Performance of the project and of the three sectors (Aquaculture, Leather and Horticulture) has been measured using eight defined indicators so far. Two types of indicators have been used to monitor PRICE’s contribution to (1) assessment of the impact of PRICE’s interventions and (2)

key indicators of the global U.S. Foreign Assistance Framework. The first category is called custom indicators and the second is called common indicators. *Custom* indicators assess impact or outcome of the project interventions. *Common* indicators are used to report on PRICE's contribution to the global results of priority program areas of the U.S. Foreign Assistance Framework. All these indicators are measured quarterly or annually throughout implementation in order to evaluate progress towards targets agreed with USAID.

While the indicators included below are intended to be reported on over the life of the project, it is likely that adjustments will be necessary over time. Annually, PRICE will review the PMP in coordination with USAID and other counterparts, and modify indicators as necessary.

Critical Assumptions

In designing the PRICE M&E system, PRICE focused on indicators within the manageable interest of the activity. This approach allows the project to measure impacts that can, to a large extent, be attributed to the project. The project's ability to demonstrate improvement in these measures is based on the following assumptions:

- Absence of sociopolitical instability
- No major agro-climatic shocks during the project period. These include major climatic shock such drought, floods and other weather hazards.
- Generally stable fiscal and monetary policy
- Willingness of project counterparts and beneficiaries to carefully consider and implement project recommendations
- Access to available statistics and cooperation in conducting surveys

Custom Indicators

PRICE has used five custom indicators and three common indicators. The custom indicators are:

PRICE has used five custom indicators and three common indicators. The custom indicators are:

- i. Indicator 1: Total value of sales increased:
Justification: Economic activities are largely measured by the creation of sales.
It is the aggregation of the increase in total value of gross sales of assisted firms that can be attributed to PRICE activities. It is calculated in United States dollars and disaggregated by domestic and export sales.
- ii. Indicator 2: Total number of full-time jobs created:
Justification: True poverty reduction means having a decent job with jobs arising from increases in sales and investment across the value chains in response to market demand. Full-time equivalent jobs will be defined as those equal to 260 work-days per year for non- agricultural production and 150 days for agricultural production (given the seasonality associated with agriculture work). Only new jobs will count, calculated by taking the total number of work days and dividing by 260 or 150, as appropriate. A new job will be attributed to the year in which the job originated.
- iii. Indicator 3: Total value of investment increased:
Justification: Economic activities are largely measured by increased investment.

It is the aggregation of the increase in the total value of investment of assisted firms that can be attributed to PRICE activities. Investment will include loan and private equity. It is calculated in United States dollars and disaggregated by domestic and export sales.

- iv. Indicator 4: Number of persons participating in USAID workforce development programs:

Justification & Management Utility: This indicator measures the number of individuals who enrolled in USG-funded workforce development programs. It is assumed that increased access to quality programs will result in a more skilled, adaptable workforce. It will give the number of persons participating in USG-funded workforce development programs including, technical and vocational programs and workforce readiness programs.

- v. Indicator 5: Number of staff (workers and managers) trained on key issues of Bangladesh Labor Law 2006*:

It will give the number of persons (workers and managers) participating in USG-funded training programs on key issues of Bangladesh Labor Law 2006.

*It has replaced an older one upon consultation with USAID.

Common Indicators

The common indicators are as follows:

- i. Indicator 1: Number of firms receiving USG assistance to improve management practices:

Justification & Management Utility: Firms improve their productivity, and in turn their competitiveness, by adopting improved management practices.

This indicator measures the number of firms that receive USG assistance to improve their management practices (financial management, strategic planning, marketing, etc.).

- ii. Indicator 2: Number of MSMEs receiving USG-supported assistance to access bank loans or private equity:

Justification & Management Utility: Firms improve their productivity, and in turn their competitiveness, by accessing capital and increasing investment in productive assets.

Number of MSMEs who are receiving assistance from USG supported sources to obtain bank loans or private properties.

- iii. Indicator 3: Number of firms receiving USG assistance to invest in improved technologies:

Justification & Management Utility: Firms improve their productivity, and in turn their competitiveness, by investing in new technologies.

It is the number of MSMEs who are receiving USG assistance.

Indicator reference sheets have been prepared for each indicator in order to provide more detail on indicator definition, units of measure, justification, data collection, and where possible, proposed targets. Indicator reference sheets are included.

The Qualitative Performance

Apart from these quantitative indicators, M&E will also conduct qualitative monitoring of partners based on Sector Causal Models. The partners' improvement in technical and management skill and knowledge as a result of PRICE activities will be monitored. PRICE will use specific format for conducting this.

c. Use of Case Studies

In some cases, case studies are used to provide deeper understanding of progress or to complement data collected by M&E. However, this should not be confused with the qualitative indicators. This is a very subjective approach and presents a plausible case that progress is being made by using illustrative examples. This is not used as substitute to the other precise measures. Case studies are being prepared by the Communication personnel of the project, under direct supervision of COP. Sector Team Leaders and others can come up with the idea of any seemingly interesting cases being observed within the boundary of Project activities and the resulting impacts. Four types of case studies are prepared: case study, success story, first person story and, photo story. Usually atleast 12 case studies are prepared each year which are submitted to USAID with quarterly and annual reports and then uploaded in the PRICE website.

d. Source of Data

Secondary Source of Data

PRICE M&E uses both primary and secondary sources of information to measure the indicators. Secondary sources can be a range of organizations including the government of Bangladesh (e.g. ministries), EPB (Export Promotion Bureau), DoF (Department of Fisheries), business associations, international organizations such as the World Bank, United Nations, universities, commercial firms and implementing partners like BSFF, BFFEA etc. Data is collected in regular intervals or based on need and a database is maintained for that. This is used for analyzing industry trend, project and sector performance etc.

Primary Source of Data

Primary sources of data are the partners or the beneficiaries themselves. For the three custom indicators (increase in sales, creation of jobs and increase in investment), the source of information is the partners or beneficiaries themselves. PRICE collects data from them directly. PRICE has contract-bound targets in these three indicators. For custom indicator 4 & 5 and common indicator 1 & 3, data is taken from the quarterly training reports produced by the project training specialist, and adjusted for the indicators' requirement. Such adjustments include ignoring double-counting when one MSME has received training twice in the same category of assistance, i.e. improved management. For common indicator 2 (assistance to access bank loans or private equity), data is collected by regular monitoring of the partner. Sample survey method is not used for this indicator because the extrapolation of survey results might contain high sampling error.

e. Baselines

Baseline is the value of an indicator before the commencement of activities, used for comparison when measuring progress toward a result. Baseline periods are taken as one year right before the impacts are expected on the partners. PRICE technical team collects baseline information during the process of making MoUs or growth plans with the partners. However, the quality of data collected at that time may not be the optimal because the technical team has only initial idea about the partner at that point. So the data collected during the MoU process needs to be adjusted sometimes. For the producer groups or associations or cooperatives with hundreds of farmers, baseline data is collected during the first training sessions conducted for the farmers. The hired consultants as well as the technical team members present in the training sessions collect the data from the partners in an organized way.

f. Targets

A target is the expected value of an indicator at a specified time in the future. It represents the project's commitment to the magnitude and timing of results to be achieved. PRICE has both interim and final targets. However, only the final targets are contract-bound.

Following table on the eight indicators shows PRICE's total target and the target allocated in the years to come. Targets on first three indicators are contract-bound targets, whereas the figures on the rest five are determined later through discussion with USAID. At the end FY '09, the year wise targets were reallocated based on the actual result of FY '09. All the years (or FY-fiscal year) shown are US fiscal years starting from October of previous year and ending at September of current year. Sector-wise desegregation as well as male-female or domestic-export desegregation of targets are shown in the table.

Custom Indicators:

Indicator	Total Target	Result till FY '10	Target FY '11	Target FY '12	Target Oct '12- Feb '13
Total Value of Sales Increased	200,000,000	47,742,967	61,550,700	72,000,000	18,706,333
Domestic	116,994,616	30,816,494	33,930,070	41,450,000	10,798,052
Export	83,005,383	16,926,473	27,620,630	30,550,000	7,908,281
Aquaculture	105,000,000	34,187,752	30,000,000	33,000,000	7,812,248
Horticulture	40,000,000	6,511,682	11,500,000	17,000,000	4,988,318
Leather/Leather products	55,000,000	7,043,533	20,050,700	22,000,000	5,905,767
Number of Full-time equivalent Jobs Created	40,000	10,514	12,500	13,500	3,486
Aquaculture	26,000	6,556	8,000	9,000	2,444
Horticulture	10,500	2,716	3,250	3,700	834
Leather/Leather products	3,500	1,242	1,250	800	208
Male	34,383	9,052	10,548	11,729	3,054
Female	5,617	1,462	1,953	1,771	432
Total Value of Investment Increased	4,000,000	2,115,480	1,300,000	480,000	104,520
Aquaculture	2,100,000	1,185,379	500,000	350,000	64,621
Horticulture	1,000,000	493,517	400,000	80,000	26,483
Leather/Leather products	900,000	436,584	400,000	50,000	13,416
Number of persons participated in WF-dev prog	15,000	3,861	7,000	3,750	389
Aquaculture	4,000	1,142	2,000	750	108
Horticulture	2,500	96	1,200	1,000	204
Leather/Leather products	8,500	2,623	3,800	2,000	77
Male	8,042	1,359	4,200	2,250	233
Female	6,959	2,503	2,800	1,500	156
No. of workers and managers trained on Bangladesh labor laws 2006	1,064	364	350	350	0
Aquaculture	1,064	364	350	350	0
Horticulture	0	0	0	0	0
Leather/Leather products	0	0	0	0	0
Male	732	242	245	245	0
Female	332	122	105	105	0

Source: PRICE-USAID Contract 388-C-00-08-00021-00, PRICE Annual Workplan 2010, PRICE Annual Report 2010

Common Indicators:

Indicator	Total Target	Result till FY '10	Target FY '11	Target FY '12	Target Oct '12-Feb '13
Number of firms and farmers receiving USG assistance to invest in improved technologies	72,300	31,995	26,300	13,600	405
Aquaculture	58,600	26,660	21,700	10,000	240
Horticulture	13,512	5,308	4,470	3,570	164
Leather/Leather products	188	27	130	30	1
Male	60,880	26,621	22,355	11,560	344
Female	11,420	5,374	3,945	2,040	61
Number of Firms and farmers receiving USG assistance to improve management Practices	31,300	7,098	14,700	9,100	402
Aquaculture	26,047	5,335	12,500	8,000	212
Horticulture	5,053	1,716	2,170	1,000	167
Leather/Leather products	200	47	30	100	23
Male	24,519	5,157	11,760	7,280	322
Female	6,781	1,941	2,940	1,820	80
Number of Firms and farmers receiving USG assistance to access formal loan or micro-credit	7,025	2,368	2,300	2,000	357
Aquaculture	4,110	1,327	1,595	995	193
Horticulture	2,900	1,037	700	1,000	163
Leather/Leather products	15	4	5	5	1
Male	3,502	1,173	1,150	1,000	179
Female	3,525	1,195	1,150	1,000	179

Source: PRICE Annual Workplan 2010, PRICE Annual Report 2010

g. Data Collection Tools

Data Elements

Many of the project's proposed indicators are aggregate indicators, made up of various data elements. M&E works with each technical team and counterpart to design database spreadsheets, forms, and surveys to capture and manage these data elements.

Tools

Formats for data collection have been designed by the PRICE M&E taking suggestions from the technical team. From time to time, these have been modified to fit the project requirement. PRICE uses M&E-designed formats to collect data on the first three custom indicators (increase in sales, creation of jobs and increase in investment) based on the different types, sources and methods of data collection. Detailed guidelines are attached with each format. All collected data forms are signed by the interviewees and the interviewers.

There are other indicators which are related to training or assistance provided by PRICE. Quarterly Training Reports generated by the PRICE Training Personnel is the source of information in this case.

h. Methods of Data Collection

Performance of the partners is collected quarterly after the baseline period ends. The quarters are calendar quarters. Baseline and quarterly performance data are collected in two ways: partner interview, and, sample survey. The *first method (partner interview)* is suitable for the individual SMEs PRICE is working with. As the name suggests, the source of information for this method is the partner or client with whom the project is working with. The approach is to proceed in a way of discussion with the partner enterprise and lead the discussion according to the need for information on performance. The partner might recall the information from memory or might check relevant business records for providing the information. Format for recording the gathered information were designed by the M&E. The interviews are conducted by taking assistance from the PRICE technical team who have contact with partner enterprises and thus can easily collect data from them ensuring the quality of data.

The *second method* for data collection, *sample survey*, has been used because in some cases where performance data on sales, jobs and investment was not readily available from the partners. Those partners did not have any organized way of keeping records on parameters like sales, jobs or investment. Thus to collect data from those partners such as fish farmers' associations who have large number of members (from 60 to 1000), sample survey method has been used. The source of information in this case is the beneficiaries of the interventions, i.e. the members of the associations etc. These surveys can be of two types: a) with statistically viable sample size, b) with a minimum sample size of 30 or larger, to approach to normal distribution.

For *type a survey*, statistically viable sample size is calculated beforehand considering the character of population to be surveyed. Professional survey teams work for data collection after taking detailed briefing on the project and process of data collection from the PRICE technical and M&E teams. Formats for data collection are provided by PRICE M&E. Sample points are selected at random. However, the cost and time required for conducting this type of survey for each partner with combined body of micro enterprises were considered huge to be conducted quarterly. Thus it has been decided that from now on PRICE will conduct this type of full-fledged surveys only annually, at the end of US fiscal year, September.

For *type b survey*, a minimum sample size of 30 or larger is taken. Statistical viability behind such decision is that when the sample size is greater than 30, the distribution approaches normal distribution. Also the homogeneity in the population (similar type of land, weather, availability of inputs, market linkage, sharing of knowledge etc.) is considered here. For the quarterly reports, these types of small surveys are conducted from the quarter Jan-Mar 2010. However, these results are verified during the annual surveys conducted later.

Data Collection by Third-Party

If necessary, PRICE may subcontract to a local research entity to conduct wide-scale surveys for this performance monitoring plan. Because of the huge size of surveys required at the end of each year, PRICE hires third party survey teams. These third party survey teams ensure the integrity of data to some extent as they are not involved in the project. M&E selects the surveyors from a pool of candidates, given the required qualification of a surveyor.

Data Entry

For the data collected on enterprise performance in each quarter, the respective Sector team performs initial data entry. This is later checked by M&E and confirmed for final submission. M&E then enters the data into the M&E database.

For the sample surveys conducted, appropriate format for data entry is required. Format for data entry is prepared by M&E. Easy-to-use MS Excel format is used. For the small quarterly surveys of sample size 30, data entry is usually done by the respective Sector Team (or in some cases, the M&E Specialist) who have collected data. For bigger surveys conducted by hired survey teams, data entry is done by the hired professional data entry operator. These third party survey teams provide data in soft copy as well as the hard copies of filled out formats.

i. Quality Control

Data Quality Analysis

M&E Team conducts visits to some sources of data to verify collected data. These are random verifications and conducted without prior notice. Data verification is also done over telephone with the partner or beneficiary. M&E team talk to the partner or beneficiary and in this way, check back with the data already at hand. If any discrepancy is observed, it is consulted with the technical team before correction. Atleast 10% data verification is done as advised by USAID. If required, M&E team takes help from the technical teams for verification. After verification is completed, M&E signs on the data formats.

After that, the PRICE technical team provides initial quality control for the various M&E raw data elements. Each Sector team examines the data to identify common errors including logical inconsistencies, out-of-range values, significant departures from trends, or other errors so that they can be immediately addressed.

The project M&E is responsible for data quality control after data entry. Around 10 percent of tabulated data is compared with the raw data forms to ensure accuracy of data entry. M&E then perform basic data analysis and tabulation to identify potential erroneous data. When errors are identified early, M&E make appropriate corrections by coordinating and consulting with counterparts as appropriate.

As some indicators' information is collected from the training reports, the data quality of training report is also important. To ensure that quality, the Training Specialist conducts visits to ongoing training sessions, consult with partner and beneficiaries, checks quality of training administration

etc. and provides on-spot recommendations. S/he also gives the feedback to respective Sector team.

Data Quality Criteria

Five related standards are used to examine data quality in more depth¹.

Criteria for Good Data Quality

1. Validity
2. Precision
3. Reliability
4. Timeliness
5. Integrity

(1) *Validity*. An indicator should clearly and adequately represent the intended result.

- *Attribution*. Does the indicator measure the contribution of the project?
- *Bias and/or Sampling Errors*. Are there any biases or sampling errors that affect the data?

(2) *Precision*. Data should be sufficiently precise to present a fair picture of performance and enable management decision-making at the appropriate levels. Also, there should be a sufficient degree of confidence in the data's accuracy.

(3) *Reliability*. Data should reflect stable and consistent data collection processes and analysis methods over time, so that changes in data are not due to changes in the data collection method. In other words, if the data collection procedure were repeated, the same result should occur.

(4) *Timeliness*. Data should be timely enough to influence management decision-making. There are two key aspects of timeliness. First, data must be available frequently enough to influence decision-making. Second, data should be current enough when available.

(5) *Integrity*. Data that are collected, analyzed, and reported should have established mechanisms in place to reduce manipulation. There are generally two types of issues that affect data integrity. The first is inaccurate transcription. For example, a number might be incorrectly entered into a database system or recorded in a performance report. Data integrity is at greatest risk of being compromised during collection and analysis. The second, and more complex issue, is whether there is any incentive on the part of the data source to manipulate the data. For example, if a project obtains data from stakeholders who depend on funding from the project, the stakeholder may have an incentive to skew data.

¹ Definitions are derived from USAID Programming Policy, ADS Chapter 203 Assessing and Learning, p. 20.

Data Quality Analysis (DQA) by USAID

USAID conducts annual DQA visits to PRICE project areas and meet partners, stakeholders, consultants. USAID also meets PRICE personnel for this and discusses the whole data collection and reporting process in detail. Based on that, USAID prepares its annual DQA report of PRICE.

Potential for Double Counting

PRICE works to minimize potential double counting through close coordination between sectors and technical teams. The project M&E will review indicators with each team and identify areas where overlapping between Sectors may occur. Once identified, the teams will work together to determine how the data will be monitored and reported.

Double counting may also occur between PRICE and other USAID projects operating under SO 12. The M&E identifies these situations and work with partner projects to determine if the results may be better reported through one or the other project. However in some situations, it may be appropriate for both projects to monitor the same data. In these cases, the project may still monitor and report on the data but will report the magnitude of potential overlaps. With this information, USAID will be able to adjust for double counting when consolidating indicators from various partners.

j. Data Analysis

After ensuring data quality, the data is processed and analyzed by the PRICE M&E. MS Excel program has been used for processing and analyses of data so far. Separate processing and analysis techniques are used for data collected from enterprises directly (by using Enterprise Data Format) and the data collected from the combined body of beneficiaries, i.e. associations or cooperatives (by using sample survey method and format). Data from sample surveys is extrapolated for getting the figure for the whole populations (taking cultivable land area as the basis). PRICE has a plan to establish a software for data entry and analysis of the collected data.

However, the process of measurement of performance is same for both: comparing performance period results with the baseline period data. The performance period data is compared with the same period in baseline and the resulting change is taken as performance. For example, while calculating quarterly increase in sales (custom indicator 1) of a partner, the gross sales of the partner in that particular quarter is compared with the baseline sales of the partner in the same quarter in the baseline year. That means:

Increase in Sales in the quarter = Value of Sales in the quarter – Value of Baseline Sales in the same quarter

In each sector, all the partners' performances are summed up for getting the aggregate performance for the sector. Then the three sectors' performances are summed up to get the project performance.

While analyzing the data, M&E focuses on the segregation required by definition of an indicator, i.e. by sector, age, region, export-import etc. After that, the quantitative achievements are linked back to the qualitative improvements by the partners. Qualitative results are collected through

regular M&E activities as well as sector activity reports. M&E takes the consent of technical team before establishing such relationship in the analyses.

Attribution:

Obviously PRICE alone is not attributable for the total improvement observed by the partners. However, considering the difficulty in isolating attribution for agro sector where there are a multitude of variables that are impossible to control or easily predict (such as weather and commodity prices), this report simply takes PRICE as one of the attributable factors behind the improvement. Any possible overestimation will be offset by the multiplier effect of the project which PRICE does not measure as performance.

k. Reporting and Review

PRICE provides M&E updates with each quarterly report. This regular reporting include a summary of activities implemented to control, verify, and validate the M&E data being reported, any anomalies discovered, and corrective measures taken to resolve them. Our reports also provide contextual analysis when factors beyond the project's control affect M&E information.

The M&E ensures that all M&E data and information from the project are easily accessible and readily convertible into USAID's own internal reporting systems.

The PRICE annual report contain in-depth analysis of annual progress towards performance targets; explanation for any non-achievements; discussions of major achievements with supporting data; an analysis of project impact; a presentation of success stories, lessons learned, and best practices; an executive summary of studies and evaluations completed; and key obstacles and goals to be addressed during the following year.

l. Designing MoU

This is a sort of client business plan where background of PRICE facilitation with the partner, baseline information, agreed plan for project activities, roles and responsibilities of both parties, expected results from the activities, cost sharing on the activities etc. are spelled out. The MoU is signed by the partner and PRICE. The technical team prepares the first draft and sits with M&E for review of identified constraints, designed interventions and expected results. M&E checks the logical consistency among these and provides any feedback required.

m. Evaluation

An evaluation is a systematic analytic effort designed to answer specific management questions. The performance monitoring system provides information on what a project accomplishes, but the evaluation attempts to answer how and why specific phenomena are occurring. Evaluations in PRICE so far concerns with partner evaluation in specific intervals. With the progress of the project, this kind of evaluations will be more frequent and necessary.

INDICATOR REFERENCE SHEETS

Performance Indicator Reference Sheet-1

Strategic Objective: Expanded economic opportunities created through equitable economic growth.

Intermediate Result: Non RMG sectors strengthened and strategic growth enhanced.

Indicator: *Custom Indicator 1: Total value of sales increased.*

DESCRIPTION

Precise Definition(s): The aggregation of the increase in the total value of gross sales of assisted firms in the three value chains that can be attributed to PRICE activities.

Unit of Measure: United States dollars converted from local currency, if necessary, at time of collection.

Disaggregated by: Domestic sales, export sales, and sector

Justification & Management Utility: Jobs are created by economic activity, which is largely measured by sales and investment.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: PRICE will collect the sales revenue data directly from the partner firms, organizations, and partner associations using pre-designed data forms. The commitment and process of collecting initial baseline data and ongoing sales information and other achievements will be outlined in detailed MOUs with partners.

Data Source(s): Records of partner firms or associations

Frequency and Timing of Data Acquisition: Quarterly. 30 days following the close of the quarter.

Estimated Cost of Data Acquisition: Minimal

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: A baseline will be established with each partner enterprise, association, trader group, etc. at the time of the signing of an MOU with the partner. If required, this baseline will be adjusted later until the impact is expected to occur.

Known Data Limitations and Significance (if any): Partner organizations may not have reliable record keeping systems.

Actions Taken or Planned to Address Data Limitations: PRICE may assist partner organizations with record keeping through project staff expertise or hired consultant, if needed.

Date of Future Data Quality Assessments: PRICE will annually review data quality issues to ensure data is of sufficient quality for monitoring and evaluation purposes.

Procedures for Future Data Quality Assessments: PRICE will assess data quality by comparing to similar sized value chain members and by conducting regular site visits.

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Data will be compared to baselines and targets quarterly by the PRICE M&E Manager.

Presentation of Data: Data will be presented using relevant tables, charts or graphs and will be included in the PRICE quarterly and annual reports.

Review of Data: Staff will review data quarterly for inclusion in the quarterly and annual progress reports.

Reporting of Data: Quarterly and annual progress reports and relevant success stories.

OTHER NOTES

Notes on Baselines/Targets: **The targets below are for each US fiscal year and are not accumulative. Each year below represents a US fiscal year (Oct-Sept), although the last entry of 2013 represents 4.5 months, covering the rest 4.5 months until contract ends. As at the end of FY 2009, the left-out targets (after achievement so far) have been re-allocated over the project life, the target and actual are taken as equal for FY 2009. From Feb 2008 to September 2009, the project was at its take-off stage, so no target or achievement is considered at that period.**

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	\$12,681,246	\$12,681,246	
2010	\$40,000,000	\$39,343,393	
2011	\$61,550,700		Target revised
2012	\$72,000,000		Target revised
2013(to Feb)	\$18,706,333		Target revised

Performance Indicator Reference Sheet-2

Strategic Objective: Expanded economic opportunities created through equitable economic growth.

Intermediate Result: Non RMG sectors strengthened and strategic growth enhanced.

Indicator: Custom Indicator 2: Total number of full-time equivalent jobs created.

DESCRIPTION

Precise Definition(s): Full-time equivalent jobs will be defined as those equal to 260 work days per year for non-agricultural production and 150 days for agricultural production (given the seasonality associated with agriculture work). Only new jobs will count, calculated by taking the total number of work days and dividing by 260 or 150, as appropriate. A new job will be attributed to the year in which the job originated.

Unit of Measure: Number

Disaggregated by: Sector, region, gender and age

Justification & Management Utility: The creation of jobs directly contributes to expanded economic opportunities and poverty reduction.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: PRICE will collect the jobs creation data directly from the PRICE assisted partner firms, organizations, and associations using pre-designed data forms. The commitment and process of collecting initial baseline data and ongoing jobs information and other achievements will be outlined in detailed MOUs with partners.

Data Source(s): Records of partner firms or associations

Frequency and Timing of Data Acquisition: Quarterly. 30 days following the close of the quarter.

Estimated Cost of Data Acquisition: Minimal

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: A baseline will be established with each partner enterprise, association, trader group, etc. at the time of the signing of an MOU with the partner. If required, this baseline will be adjusted later until the impact is expected to occur.

Known Data Limitations and Significance (if any): Partner organizations may not have reliable record keeping systems.

Actions Taken or Planned to Address Data Limitations: PRICE may assist partner organizations with record keeping through project staff expertise or hired consultant, if needed.

Date of Future Data Quality Assessments: PRICE will annually review data quality issues to ensure data is of sufficient quality for monitoring and evaluation purposes.

Procedures for Future Data Quality Assessments: PRICE will assess data quality by comparing to similar sized value chain members and by conducting regular site visits.

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Data will be compared to baselines and targets quarterly by the PRICE M&E Manager.

Presentation of Data: Data will be presented using relevant tables, charts or graphs and will be included in the PRICE quarterly and annual reports.

Review of Data: Staff will review data quarterly for inclusion in the quarterly and annual progress reports.

Reporting of Data: Quarterly and annual progress reports and relevant success stories.

OTHER NOTES

Notes on Baselines/Targets: The targets below are for each US fiscal year and are not accumulative. Each year below represents a US fiscal year (Oct-Sept), although the last entry of 2013 represents 4.5 months, covering the period until the contract ends. At the end of FY 2009, the left-out targets (after achievement so far) have been re-allocated over the project life, the target and actual are taken as equal for FY 2009. From Feb 2008 to September 2009 no target or achievement is considered at that period.

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	1,658	1,658	
2010	10,000	9,585	
2011	12,500		Target revised
2012	13,500		Target revised
2013(to Feb)	3,486		Target revised

Performance Indicator Reference Sheet-3

Strategic Objective: Expanded economic opportunities created through equitable economic growth.

Intermediate Result: Non RMG sectors strengthened and strategic growth enhanced.

Key Result Area: N/A

Indicator: *Custom Indicator 3: Total value of investment increased.*

DESCRIPTION

Precise Definition(s): The aggregation of the increase in the total value of investments of assisted firms in the three value chains that can be attributed to PRICE activities. Investment will include loans and private equity.

Unit of Measure: United States dollars converted from local currency, if necessary, at time of collection.

Disaggregated by: Sector

Justification & Management Utility: Jobs are created by economic activity, which is largely measured by sales and investment.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: PRICE will collect investment data directly from the partner firms, organizations, and partner associations using pre-designed data forms. The commitment and process of collecting initial baseline data and ongoing information will be outlined in detailed MOUs with partners.

Data Source(s): Records of partner firms or associations

Frequency and Timing of Data Acquisition: Quarterly. 30 days following the close of the quarter.

Estimated Cost of Data Acquisition: Minimal

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: A baseline will be established with each partner enterprise, association, trader group, etc. at the time of the signing of an MOU with the partner. If required, this baseline will be adjusted later until the impact is expected to occur.

Known Data Limitations and Significance (if any): Partner organizations may not have reliable record keeping systems.

Actions Taken or Planned to Address Data Limitations: PRICE may assist partner organizations with record keeping through project staff expertise or hired consultant, if needed.

Date of Future Data Quality Assessments: PRICE will annually review data quality issues to ensure data is of sufficient quality for monitoring and evaluation purposes.

Procedures for Future Data Quality Assessments: PRICE will assess data quality by comparing to similar sized value chain members and by conducting regular site visits.

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Data will be compared to baselines and targets quarterly by the PRICE M&E Manager.

Presentation of Data: Data will be presented using relevant tables, charts or graphs and will be included in the PRICE quarterly and annual reports.

Review of Data: Staff will review data quarterly for inclusion in the quarterly and annual progress reports.

Reporting of Data: Quarterly and annual progress reports and relevant success stories.

OTHER NOTES

Notes on Baselines/Targets: The targets below are for each US fiscal year and are not accumulative. Each year below represents a US fiscal year (Oct-Sept), although the last entry of 2013 represents 4.5 months, covering the rest 4.5 months until contract ends. As at the end of FY09, the left-out targets (after achievement so far) have been re-allocated over the project life, the target and actual are taken as equal for FY09. From Feb 08 to Sep 09, the project was at its take-off stage, so no target or achievement is considered at that period.

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	\$520,129	\$520,129	
2010	\$1,000,000	1,870,585	
2011	\$1,300,000		Target revised
2012	\$480,000		Target revised
2013(to Feb)	\$104,520		Target revised

Performance Indicator Reference Sheet-4

Strategic Objective: Expanded economic opportunities created through equitable economic growth.

Intermediate Result: Workforce skill improved and labor rights protected.

Key Result Area: Skills of youth and women upgraded.

Indicator: *Custom Indicator 4: Number of persons participating in USAID workforce development programs*

DESCRIPTION

Precise Definition(s): Number of persons participating in USG-funded workforce development programs, including technical and vocational programs and workforce readiness programs.

Unit of Measure: Number

Disaggregated by: Sector, Gender, and Age

Justification & Management Utility: This indicator measures the number of individuals who enrolled in USG-funded workforce development programs. It is assumed that increased access to quality programs will result in a more skilled, adaptable workforce.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: PRICE will track and report data from internal project documentation on the number of persons participating in PRICE workforce development programs.

Data Source(s): Project documentation from field offices, including training registration rolls, workshop participant rolls, etc.

Frequency and Timing of Data Acquisition: Quarterly

Estimated Cost of Data Acquisition: Minimal, as collection will be part of routine project work.

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: N/A

Known Data Limitations and Significance (if any): N/A

Actions Taken or Planned to Address Data Limitations: N/A

Date of Future Data Quality Assessments: N/A

Procedures for Future Data Quality Assessments: N/A

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Data will be compared to baselines and targets quarterly by the PRICE M&E Manager.

Presentation of Data: Data will be presented using relevant tables, charts or graphs and will be included in the PRICE quarterly and annual reports.

Review of Data: Staff will review data quarterly for inclusion in the quarterly and annual progress reports.

Reporting of Data: Quarterly and annual progress reports and relevant success stories.

OTHER NOTES

Notes on Baselines/Targets: **The targets below are for each US fiscal year and are not accumulative. Each year below represents a US fiscal year (Oct-Sept), although the last entry of 2013 represents 4.5 months, covering the rest 4.5 months until contract ends. As at the end of FY 2009, the left-out targets (after achievement so far) have been re-allocated over the project life, the target and actual are taken as equal for FY 2009. From Feb 2008 to September 2009, the project was at its take-off stage, so no target or achievement is considered at that period.**

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	1,616	1,616	
2010	3,700	3,137	
2011	7,000		Target revised
2012	3,750		Target revised
2013(to Feb)	389		Target revised

Performance Indicator Reference Sheet-5

Strategic Objective: Expanded economic opportunities created through equitable economic growth.

Intermediate Result: Workforce skill improved and labor rights protected.

Key Result Area: Labor rights code of conduct adopted.

Indicator: Custom Indicator 5: Number of staff (workers and managers) trained on key issues of Bangladesh Labor Law 2006 (New indicator: Replaced the old one)

DESCRIPTION

Precise Definition(s): Number of staff (workers and managers) trained on key issues of Bangladesh Labor Law 2006 supported by PRICE and industry stakeholders.

Unit of Measure: Number

Disaggregated by: Sector, gender and age

Justification & Management Utility: Compliance with local labor laws is a vital requirement in order to maintain or grow the current export market. It is assumed that increased access of staffs to quality programs on Bangladesh Labor Law 2006 will result in a more skilled workforce and compliant labor environment.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: PRICE will track and report data from internal project documentation on the number of persons participating in PRICE workforce development programs.

Data Source(s): Project documentation from field offices, including training registration rolls, workshop participant rolls, etc.

Frequency and Timing of Data Acquisition: Quarterly

Estimated Cost of Data Acquisition: Minimal, as collection will be part of routine project work.

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: N/A

Known Data Limitations and Significance (if any): N/A

Actions Taken or Planned to Address Data Limitations: N/A

Date of Future Data Quality Assessments: N/A

Procedures for Future Data Quality Assessments: N/A

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Data will be compared to baselines and targets quarterly by the PRICE M&E Manager.

Presentation of Data: Data will be presented using relevant tables, charts or graphs and will be included in the PRICE quarterly and annual reports.

Review of Data: Staff will review data quarterly for inclusion in the quarterly and annual progress reports.

Reporting of Data: Quarterly and annual progress reports and relevant success stories.

OTHER NOTES

Notes on Baselines/Targets: The targets below are for each US fiscal year and are not accumulative. Each year below represents a US fiscal year (Oct-Sept), although the last entry of 2013 represents 4.5 months, covering the rest 4.5 months until contract ends. As at the end of FY 2009, the left-out targets (after achievement so far) have been re-allocated over the project life, the target and actual are taken as equal for FY 2009. From Feb 2008 to September 2009, the project was at its take-off stage, so no target or achievement is considered at that period.

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	0	0	
2010	340	364	
2011	350		Target revised
2012	350		Target revised
2013(to Feb)	0		Target revised

Performance Indicator Reference Sheet-6

Strategic Objective: Expanded economic opportunities created through equitable economic growth.

Intermediate Result: SME competitiveness enhanced and growth accelerated.

Key Result Area: Increased access to improved production technologies.

Indicator: *Common Indicator 1: Number of firms receiving USG assistance to improve their management practices*

DESCRIPTION

Precise Definition(s): This indicator measures the number of firms that receive USG assistance to improve their management practices (financial management, strategic planning, marketing, etc).

Unit of Measure: Number

Disaggregated by: Sector, region and gender of owner/manager, if possible

Justification & Management Utility: Firms improve their productivity, and in turn their competitiveness, by adopting improved management practices.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: PRICE will track and report from internal project documentation the firms or enterprises that receive USG assistance, through PRICE, to improve their management practices.

Data Source(s): Project documentation from field offices, including trip notes from client field visits, training and workshop participants registration rolls, partner documentation, etc.

Frequency and Timing of Data Acquisition: Quarterly.

Estimated Cost of Data Acquisition: Minimal

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: N/A

Known Data Limitations and Significance (if any): N/A

Actions Taken or Planned to Address Data Limitations: N/A

Date of Future Data Quality Assessments: N/A

Procedures for Future Data Quality Assessments: N/A

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Data will be compared to baselines and targets quarterly by the PRICE M&E Manager.

Presentation of Data: Data will be presented using relevant tables, charts or graphs and will be included in the PRICE quarterly and annual reports.

Review of Data: Staff will review data quarterly for inclusion in the quarterly and annual progress reports.

Reporting of Data: Quarterly and annual progress reports and relevant success stories.

OTHER NOTES

Notes on Baselines/Targets: **The targets below are for each US fiscal year and are not accumulative. Each year below represents a US fiscal year (Oct-Sept), although the last entry of 2013 represents 4.5 months, covering the rest 4.5 months until contract ends. As at the end of FY 2009, the left-out targets (after achievement so far) have been re-allocated over the project life, the target and actual are taken as equal for FY 2009. From Feb 2008 to September 2009, the project was at its take-off stage, so no target or achievement is considered at that period.**

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	2,489	2,489	
2010	2,000	4,613	
2011	14,700		Target revised
2012	9,100		Target revised
2013(to Feb)	402		Target revised

Performance Indicator Reference Sheet-7

Strategic Objective: Expanded economic opportunities created through equitable economic growth.

Intermediate Result: SME competitiveness enhanced and growth accelerated.

Key Result Area: Access to commercial loans improved.

Indicator: *Common Indicator 2: Number of SMEs receiving USG-supported assistance to access bank loans or private equity*

DESCRIPTION

Precise Definition(s): Number of small and medium enterprises, including farms, which receive assistance from USG through PRICE to obtain bank loans or private equity.

Unit of Measure: Number

Disaggregated by: Sector, region and gender of owner/manager, if possible

Justification & Management Utility: Firms improve their productivity, and in turn their competitiveness, by accessing capital and increasing investment in productive assets.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: PRICE will track and report from internal project documentation the number of SMEs receiving USG supported assistance to access bank loans or private equity.

Data Source(s): Project documentation from field offices, including trip notes from client field visits, training and workshop participants registration rolls, partner documentation, etc.

Frequency and Timing of Data Acquisition: Quarterly.

Estimated Cost of Data Acquisition: Minimal

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: N/A

Known Data Limitations and Significance (if any): N/A

Actions Taken or Planned to Address Data Limitations: N/A

Date of Future Data Quality Assessments: N/A

Procedures for Future Data Quality Assessments: N/A

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Data will be compared to baselines and targets quarterly by the PRICE M&E Manager.

Presentation of Data: Data will be presented using relevant tables, charts or graphs and will be included in the PRICE quarterly and annual reports.

Review of Data: Staff will review data quarterly for inclusion in the quarterly and annual progress reports.

Reporting of Data: Quarterly and annual progress reports and relevant success stories.

OTHER NOTES

Notes on Baselines/Targets: **The targets below are for each US fiscal year and are not accumulative. Each year below represents a US fiscal year (Oct-Sept), although the last entry of 2013 represents 4.5 months, covering the rest 4.5 months until contract ends. As at the end of FY 2009, the left-out targets (after achievement so far) have been re-allocated over the project life, the target and actual are taken as equal for FY 2009. From Feb 2008 to September 2009, the project was at its take-off stage, so no target or achievement is considered at that period.**

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	129	129	
2010	300	2,239	
2011	2,300		Target revised
2012	2,000		Target revised
2013(to Feb)	357		Target revised

Performance Indicator Reference Sheet-8

Strategic Objective: Expanded economic opportunities created through equitable economic growth.

Intermediate Result: SME competitiveness enhanced and growth accelerated.

Key Result Area: Access to improved production technologies improved.

Indicator: *Common Indicator 3: Number of firms receiving USG assistance to invest in improved technologies*

DESCRIPTION

Precise Definition(s): This indicator measures the number of firms, proprietors or farms that receive USG assistance through PRICE to invest in improved technologies, including equipment, processes, IT, etc.

Unit of Measure: Number

Disaggregated by: Sector, region and gender of owner/manager, if possible

Justification & Management Utility: Firms improve their productivity, and in turn their competitiveness, by investing in new technologies.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: PRICE will track and report from internal project documentation the number of SMEs receiving USG supported assistance to invest in improved technologies.

Data Source(s): Project documentation from field offices, including trip notes from client field visits, training and workshop participants registration rolls, partner documentation, etc.

Frequency and Timing of Data Acquisition: Quarterly

Estimated Cost of Data Acquisition: Minimal

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: N/A

Known Data Limitations and Significance (if any): N/A

Actions Taken or Planned to Address Data Limitations: N/A

Date of Future Data Quality Assessments: N/A

Procedures for Future Data Quality Assessments: N/A

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Data will be compared to baselines and targets quarterly by the PRICE M&E Manager.

Presentation of Data: Data will be presented using relevant tables, charts or graphs and will be included in the PRICE quarterly and annual reports.

Review of Data: Staff will review data quarterly for inclusion in the quarterly and annual progress reports.

Reporting of Data: Quarterly and annual progress reports and relevant success stories.

OTHER NOTES

Notes on Baselines/Targets: **The targets below are for each US fiscal year and are not accumulative. Each year below represents a US fiscal year (Oct-Sept), although the last entry of 2013 represents 4.5 months, covering the rest 4.5 months until contract ends. As at the end of FY09, the left-out targets (after achievement so far) have been re-allocated over the project life, the target and actual are taken as equal for FY09. From Feb 08 to Sep 09, the project was at its take-off stage, so no target or achievement is considered at that period.**

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	6,216	6,216	
2010	4,000	23,056	
2011	26,300		Target revised
2012	13,600		Target revised
2013(to Feb)	405		Target revised

Instructions for Completing the Performance Indicator Reference Sheet

Strategic Objective: Enter the title of the SO.

Intermediate Result: Enter the title of the relevant IR, if any.

Key Result Area: Enter the title of the Key Result Area (KRA)

Indicator: Enter the full title and number of the indicator.

DESCRIPTION

Precise Definition(s): Define the indicator more precisely. Define specific words or elements within the indicator.

Unit of Measure: Enter the unit of measure (e.g., *number of...*, *percent of...*, *U.S. dollars*, etc.).

Disaggregated by: List planned data disaggregation (male/female, youth/adult, urban/rural, region, etc.)

Justification & Management Utility: Briefly describe *why* this particular indicator was selected and how it will be useful for managing performance of the project.

PLAN FOR DATA ACQUISITION BY THE PROJECT

Data Collection Method: Describe the *tools* and *methods* through which the data will be collected.

Data Source(s): Identify who is responsible for providing the data (e.g., M&E contractor, specific team member, etc.).

Frequency and Timing of Data Acquisition: Describe *how often* data will be received and *when*.

Estimated Cost of Data Acquisition: Estimate the cost (in dollars and/or level of effort) of collecting the data.

Responsible Individual at the Project: Name the team member who will be *directly responsible* for acquiring the data.

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: Enter the date of initial data quality assessment and the responsible party.

Known Data Limitations and Significance (if any): Describe any data limitations discovered during the initial data quality assessment. Discuss the significance of any data weakness that may affect conclusions about the extent to which performance goals have been achieved.

Actions Taken or Planned to Address Data Limitations: Describe how you have or will take corrective action, if possible, to address data quality issues.

Date of Future Data Quality Assessments: Enter the planned date for subsequent data quality assessments.

Procedures for Future Data Quality Assessments: Describe *how* the data will be assessed in the future (e.g., spot checks of partner data, financial audit, site visits, software edit check, etc.).

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Describe *how* the raw data will be analyzed, *who* will do it, and *when*.

Presentation of Data: Describe how tables, charts, graphs, or other devices will be used to present data, either internally within the project team, or externally to USAID or home office.

Review of Data: Describe *when* and *how* project management will review the data and analysis (e.g., mid-term evaluation, quarterly reports, etc.)

Reporting of Data: List any internal or external reports that will feature data for this indicator (e.g., quarterly reports)

OTHER NOTES

Notes on Baselines/Targets: **Explain how the baselines and targets were set and identify any assumptions made. If baselines and targets have *not* been set, identify *when* and *how* this will be done.**

Other Notes: **Use this space as needed.**

PERFORMANCE INDICATOR VALUES

Year	Target	Actual	Notes
2009	Enter target value	Enter actual value	Enter any explanation here
2010			

THIS SHEET LAST UPDATED ON: mm/dd/yy

To avoid version control problems, enter the date of most recent revision to the reference sheet.

ANNUAL AND QUARTERLY TARGETS FOR FY 2011

Indicator	FY '11				
	Total	Q1	Q2	Q3	Q4
Number of firms and farmers receiving USG assistance to invest in improved technologies	26,300	8,010	6,540	6,440	5,310
Aquaculture	21,700	7,000	5,500	5,200	4,000
Horticulture	4,470	1,000	1,000	1,200	1,270
Leather/Leather products	130	10	40	40	40
Male	22,355	6,809	5,559	5,474	4,514
Female	3,945	1,202	981	966	797
Number of Firms and farmers receiving USG assistance to improve management Practices	14,700	3,510	3,510	4,110	3,570
Aquaculture	12,500	3,000	3,000	3,500	3,000
Horticulture	2,170	500	500	600	570
Leather/Leather products	30	10	10	10	0
Male	11,760	2,808	2,808	3,288	2,856
Female	2,940	702	702	822	714
Number of Firms and farmers receiving USG assistance to access formal loan or micro-credit	2,300	452	601	651	596
Aquaculture	1,595	300	400	500	395
Horticulture	700	150	200	150	200
Leather/Leather products	5	2	1	1	1
Male	1,150	226	301	326	298
Female	1,150	226	301	326	298
Total Value of Sales Increased	61,550,700	13,031,300	13,969,400	16,044,400	18,505,600
Domestic	33,930,070	8,180,630	7,492,440	8,244,690	10,012,310
Export	27,620,630	4,850,670	6,476,960	7,799,710	8,493,290
Aquaculture	30,000,000	7,000,000	7,000,000	8,000,000	8,000,000
Horticulture	11,500,000	3,150,000	2,230,000	2,165,000	3,955,000
Leather/Leather products	20,050,700	2,881,300	4,739,400	5,879,400	6,550,600
Number of Full-time equivalent Jobs Created	12,500	3,040	3,270	3,120	3,070
Aquaculture	8,000	2,000	2,000	2,000	2,000
Horticulture	3,250	800	800	800	850
Leather/Leather products	1,250	240	470	320	220
Male	10,548	2,607	2,672	2,630	2,639
Female	1,953	433	598	490	431
No. of workers and managers trained on Bangladesh labor laws 2006	350	0	115	115	120
Aquaculture	350	0	115	115	120
Horticulture	0	0	0	0	0
Leather/Leather products	0	0	0	0	0
Male	245	0	81	81	84
Female	105	0	35	35	36

Total Value of Investment Increased	1,300,000	300,000	300,000	350,000	350,000
Aquaculture	500,000	100,000	100,000	150,000	150,000
Horticulture	400,000	100,000	100,000	100,000	100,000
Leather/Leather products	400,000	100,000	100,000	100,000	100,000
Number of persons participated in WF-dev prog	7,000	1,300	1,800	2,300	1,600
Aquaculture	2,000	500	500	500	500
Horticulture	1,200	300	300	300	300
Leather/Leather products	3,800	500	1,000	1,500	800
Male	4,200	780	1,080	1,380	960
Female	2,800	520	720	920	640

BUDGET

Budget Line Item	Projected Expense
Salaries	\$442,893
Fringe	\$249,193
Overhead	\$409,291
Allowances	\$132,272
Other Direct Costs	\$164,803
Equipment, Vehicles, and Freight	\$3,750
Subcontractors (Dexis)	\$39,375
SAF	
-Horticulture	\$532,474
-Aquaculture	\$710,959
-Leather Products	\$338,352
G&A	\$81,931
Fee	\$153,297
Total*	\$3,258,591

*The total number may be slightly off due to rounding.